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Fabricating Structural Steel and Ornamental Iron by Welding

Principal Changes from Existing Design Will Occur in Details, Which Should Be Executed with Regard To Assembly, Tacking, Welding, Shipping and Erection

By Paul B. Covey

President, Manchester Engineering & Welding Co.

IN APPLYING electric welding to the fabrication of structural steel and ornamental iron, the following eight operations are involved: Design, details, layout, assembly, tacking, welding, shipping and erection. These cover the entire field of work in all structural and iron fabrication.

The general design of structural steel does not vary materially in riveted or welded structures except insofar as it may be possible to make use of the principle of continuity at connections. The marked differences in design will come in the working out of the details. This likewise is true in the general design of ornamental or miscellaneous iron work, nearly all layouts of which are made either from an architectural or a purely utilitarian standpoint. In most cases no stresses which require calculation occur in any part of the structures; therefore it usually is the detail design which governs the entire layout.

But in approaching the detailed design we are entering a new field of activity. No handbooks are available for reference and there are no rule-of-thumb methods to be followed. It is new and different and herein lies one of the great appeals for the use of welding —the studying of something new.

In the design of details,

consideration must be given to the operations which follow. The details must be such as to make the layout work easy and rapid and as near foolproof as possible. Care must be taken to be sure that the work can be assembled readily. Sometimes it is easier to make a drawing of a connection than to work up the connection itself.

Fussy machine work, such as notching, or coping punching for field connections, (if field bolted) scarfing for welding, etc., should be done on the smaller pieces, leaving the heavier pieces as nearly as possible in the rough condition in which they are normally found in the stock pile. This can be done with a little thought in preparing the details of connections and will save a tremendous amount in the cost of shop labor. For instance, the usual under-run and over-run of plates need not be an annoyance if proper care is taken to provide for such allowances in the details of the connecting members.

Trucking and freight charges must be considered. It is not wise to assemble a unit so large as to cause excessive transportation charges, as sometime these will offset the expenses of field erection. The designer should constantly keep in mind the question: "Can this be erected as I have detailed it—easily and economically?" In other words, the study of details must include a careful consideration of every operation to follow all down through the line, if the greatest economy is to be effected.

The problem of laying out for welded construction is comparatively simple. The plainer a drawing is, the easier it is to follow it and the less chance there is for errors to creep in. This applies equally well to either the construction of structural steel or of ornamental or miscellaneous iron.

A study of the assembling and welding program must be made by the layer-out so that all pieces are properly prepared before they are assembled in place. It is easier to bevel an edge where welding is required before the piece is assembled in place than to discover it afterwards.

In the assembly of either class of work three things are needed more than anything else. These are first, clamps; second, clamps; and third, clamps. Without a sufficient quantity of clamps a welding shop is seriously handicapped; with plenty of clamps, almost anything can be assembled.

Jigs also are needed. The three types required are forms, clamps and jacks.

"Forms" include those contraptions which are made up and used for the purpose of giving form or shape to the part to be welded. Each is carefully worked up so that the shape of the finished part will be true to the form called for on the plans but it is not usually necessary to put much care into the quality of the jig. The parts comprising the jig usually are tacked together and no particular care is taken to make a neat or especially strong job. In all probability it will not be used for more than one job and hence must be inexpensive.

More care is required in preparing the second class of jigs. These are grouped under the heading of "clamps" because their purpose is to hold assembled parts in place accurately and securely while they are being welded together. Care should be taken in making these clamps to be sure that they are strong and substantial. Since this takes time and costs money a study should be made to design jigs that will be suitable for future use.

With a litle thought such jigs can be made adjustable so they may be used in a variety of places.

The last group, termed "jacks" is the most complicated and the most expensive of the three. It comprises jigs for jacking members apart, jigs for pulling members together, jigs for twisting members into place, and jigs for preventing members from twisting out of place—in fact, a large number of corrective jigs the necessity of which is realized only by those who are engaged in the welding of steel and iron work. These should be grouped into types and great care taken to make them permanent and also to be sure that they are applicable to a wide variety of uses.

As an illustration of the use of corrective jigs, the welding of a set of five trash racks for the intake to a hydroelectric power plant may be of interest. Each rack was made up of about 15 bars, 4 x ⅜-inch, 20 feet long, spaced about 3 inches on centers. Fastening these into position at about 4 feet intervals were iron bars or angles notched so that they set up under and almost half way onto the long bars. At the point where each cross bar met a long bar, it was required that a continuous weld be made around the entire joint. All welds came at the lower half of the long bars.

In setting up the first rack, everything was clamped rigidly to heavy beams and then all joints were welded. Not a sign of warping or twisting was in evidence during the work. When the first clamps were removed the rack began to twist and warp until, when all the clamps were off, it had a bow in the long bars of about 1½ inches and in the cross bars of about ¼-inch.

We tried everything including hammering, jacking, etc. to take out this warp but to no avail. It was there to stay. We set the arch to one side and tackled a second. This time we set up all members as before but wedged all parts before clamping so that when completely clamped there was a warp in the long bars of 1½ inches and in short ones of ¼-inch, as in the completed rack, but in the other direction. We thought that if we offset the parts the same amount they warped in the first rack that on welding, they would warp to the point where the rack would be straight when the clamps were removed.

This procedure resulted in a rack much better than the first one, but it still was not satisfactory. After several trials we found that in order to produce a straight rack it was necessary to allow for twice as much reverse warp as in the first rack.

Welding Affects All Operations

SUCCESSFUL application of electric welding involves more than the introduction of a new operation to the shop. It requires a study of all the steps in fabrication. This is illustrated in the accompanying article, which is from a paper presented at a meeting of the Philadelphia section of the American Welding society, Jan. 21, 1929.

Advises Conservative Safety Factor

WELDING is a comparatively new art. Many companies still are experimenting with it, so to speak. Are we not a little unwise in allowing the same factor of safety for welding as for the well established practice of riveting? I think we are. In my shop in Manchester we use a factor of safety of from 6 to 8, depending on the seriousness of the case and upon who is doing the work. We would rather be safe than sorry.

The welding industry is making tremendous strides, but we who are in it must be careful that our enthusiasm does not outweigh our reason. We must learn to walk before we run and we must learn to creep before we walk.

—PAUL B. COVEY

The last of the five racks was found to be straight when the clamps were removed.

This experimental work cost time and money but it yielded valuable information. We have used this principle several times since to good advantage.

The writer believes that one of the most important problems to be solved in the field of research is that of warping due to welding. It should not be necessary to *make* something in order to see how much it would warp so as to know how to counteract such warping. When a large number of units are to be made the cost of making one unit wrong can be absorbed in the cost of the remaining units, but if there are only two or three to be made or if only one to be made the "rule of thumb" method is expensive.

The man who assembles the work must have in mind the welding to be done and by a system of chalk marks or other notations advise the welder as to the exact location and size of each weld desired. The welder's time is valuable and he should not be required to study out for himself where to do the welding.

There should be someone thoroughly familiar with the job who will see to it after the welding is completed that all the welding is done which is necessary to assure a good job. With riveted construction, if the holes are all placed in the middle to be riveted up, there is not much question but what the riveting gang will put in all of the rivets planned on. With welded construction it is not so easy for the welder to be sure that he has located all of the welds desired and unless the structure is carefully inspected before being painted, the chances are very great that it may leave the shop with some joints not fully welded.

The problem of shipping welded products involves a consideration of size, weight, crating, etc., all of which affect the amount of shop work done and the amount left to be completed in the field. The same considerations apply to erection and must be given careful attention from the very beginning of the project.

In the writer's opinion the greatest economy will come when all structures are erected entirely in the field using what may be called the "saw, hammer and nail" method such as is used in timber construction. This method was followed in the construction of a building in Maine. All material was sent direct from the mill to the job and cut, fitted and erected entirely in the field, the burning torch being the "saw" and the welding outfits representing the "hammer and nails." Not a hole was made and not a hole was needed. Holes are not used in timber construction; why are they necessary in steel work?

Whether the class of work is structural steel, ornamental or miscellaneous iron; whether the work is entirely shop fabricated, or part done in the shop and part in the field, or whether it is all field work, it must be remembered that the entire procedure is new and requires much thought and study. Where a structure designed for riveting is welded, as designed, the cost will be high, but where that structure is redesigned for welding before actual work is done, the cost will be much more favorable.

Looks for Portable Weld Tester

I AM looking for the day—not far distant—when I shall be able to carry around in my pocket a small contraption which in a moment's time can be applied to a welded joint and will give me a reliable indication of the character of the weld. The most probable thing, it seems to me, will be a small portable X-ray apparatus—highly sensitive and yet reasonably fool-proof so that it can be carried around here and there and still stand up under severe usage. I believe there is a demand for such an instrument and where there is a demand there usually is fulfilment. When such an advance has been made who can predict what the future will bring forth as a result of the use of welded joints?

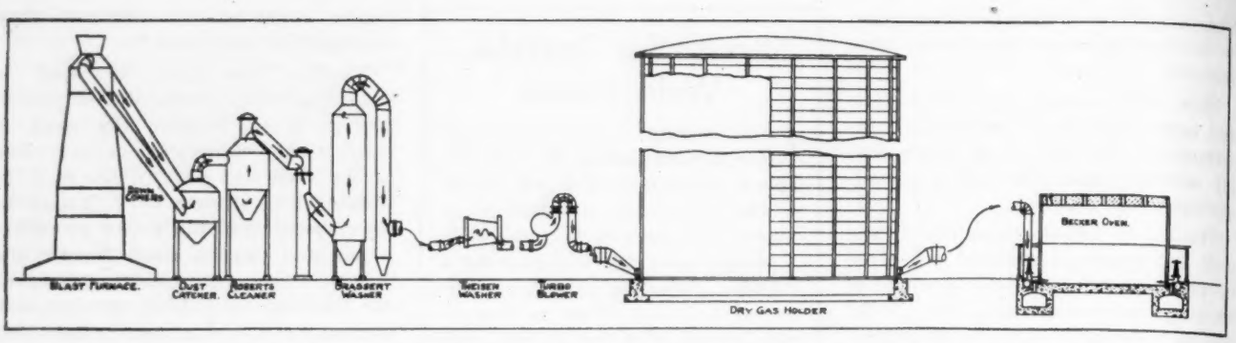
—PAUL B. COVEY

Export More Machinery

Exports of industrial machinery in January totaled $20,776,000, an increase of 37 per cent over January, 1928, and a fair increase over the $18,636,000 of December, 1928. The January total was the largest for any month in seven years. Compared with January, 1928, all classifications of industrial machinery exports except textile machinery registered a gain. The most important gains were in power, pumping equipment and well and refining machinery and similar classifications.

Employs Special Rack for Storing Steel Bars

DEMAND of modern industry has stimulated the production of plain and alloy steels with a wide range of properties. Faced with the necessity of using many different types of steel in a single machine, the manufacturer has had to provide additional stockroom facilities. This is a view of a special steel rack in the plant of Pratt & Whitney Co., Hartford, Conn. Each different grade of material is tagged and each series of horizontal racks carries the same size of bars. The racks themselves are made of steel angles and channels. In order to facilitate transportation of bars to and from this large rack, special roller racks are used. One of these is shown in the foreground supporting a 4-inch bar. These roller racks make possible for one man to handle a bar weighing 3000 pounds. These racks are made by Joseph T. Ryerson & Son Inc., Jersey City, N. J., to specifications drawn up by the engineering department of Pratt & Whitney Co.



Elevation of cleaning and storage equipment for blast furnace gas used for firing by-product coke ovens

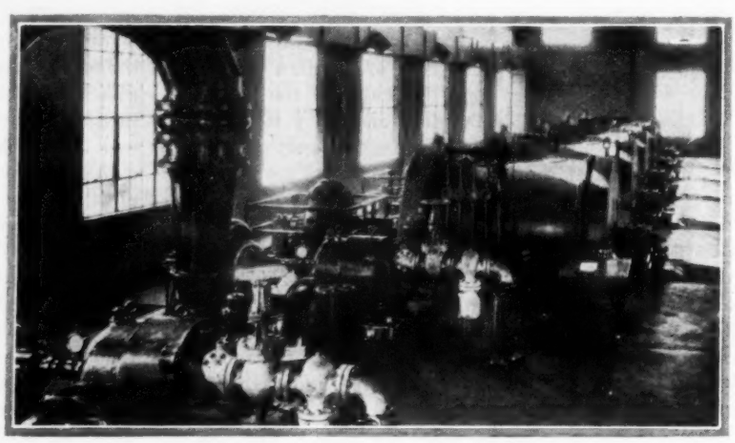
By-Product Ovens Are Underfired with Blast Furnace Gas

¶ *Practice Affords Sale of Coal Gas for Domestic Purposes — More Uniform Size of Coke and Distribution of Heat to Oven Walls Are Realized*

HEATING by-product coke ovens with blast furnace gas exclusively was begun Oct. 26, 1928 for the first time in this country at the S. Chicago plant of the By-Products Coke Corp., Chicago. The coking plant includes two batteries each of 55 Becker cross-regenerative type ovens of 13.8 tons capacity. The ovens, which were built by the Koppers Construction Co., Pittsburgh, were designed to be heated with coal gas, producer gas or blast furnace gas, and up to this time had been heated with coal gas.

The economic value of underfiring coke ovens with blast furnace gas has been recognized for many years and has been practiced extensively in continental Europe. The corporation was the first to introduce this system into a modern coke plant in this country, although in January 1929 the Youngstown Sheet & Tube Co. started heating its new Becker-type ovens at S. Chicago, Ill. with this fuel. For several years the corporation had been studying the problem of utilizing to the best advantage the gas from its two blast furnaces located at 108th street and Calumet river, in S. Chicago. Since there was no direct use for the gas, beyond heating the stoves, the surplus was used for generation of steam, and indirectly, electric power for operation of the furnace plant. A small excess was sold. The coke plant supplying these stacks is located approximately 1 mile distant and separated from the furnaces by the Calumet river and the main tracks of several railroads. Here coke breeze was being used under boilers for production of the plant's steam and electric power.

After balancing the values of the different forms of energy involved, namely blast furnace, gas, coal gas, coke breeze and electric power it was decided to use the furnace gas to heat the coke ovens and release the coal gas for sale as domestic fuel. This plan included the production of steam power for the furnace plant from breeze to be purchased from the coke plant. Apparatus already in use for cleaning the gas consisted of dry dust catcher, Roberts and Kennedy dry cleaner and Brassert washer on outlet of each furnace. To further clean the gas to the degree suitable for use in coke ovens, the Theissen type wet scrubbing was chosen. Five Theissen washers having a capacity of 13,900 cubic feet per minute each were installed and three Ingersoll-Rand turbo compressors, one unit of each being a spare. The washers are driven by synchronous motors, the boosters by steam turbines. The gas piping extending over a mile is mostly 60-inch riveted steel, including 400 feet laid in a tunnel under the Calumet river. About 400 feet of cast-iron pipe is laid under railroad tracks and paving at 114th street. A 2,000,000 cubic foot dry gas holder was erected at the coke plant, having a working pressure



Theissen type washers for scrubbing the gas are shown in background; boosters are shown in foreground

of 8 inches of water. It is equipped with elevator, tar conditioner, and distant type of indicator and recorder of height, by means of which operators at ovens and at washing plant know at all times the amount of gas in the holder. Electrical controls are provided which automatically shut off the gas to the ovens by reversing machinery, in case the amount of gas in the holder should reach a fixed minimum.

At the ovens no changes in structure of the flues or regenerators were necessary. The furnace gas fuel mains were laid on each side of the batteries, just above the waste heat canal, and combination fuel and waste gas boxes were installed on one-half the regenerators. The flow of fuel gas, air and waste gases is the same as when underfiring Becker ovens with producer gas, and the reversing machinery is the same. Orifice type gas flow meters and a recording calorimeter complete the equipment.

The new boiler house at the furnace plant contains four straight tube high-pressure Connelly boilers at 640 horsepower, equipped with Greene stokers and Cash automatic control. One boiler is equipped to burn blast furnace gas as well as breeze.

Coking Time Reduced

The ovens have been heated with cleaned blast furnace gas of 85 to 100 B.t.u. for three months without difficulty, either in the cleaning, delivery of the gas, or heating of the ovens. The coking time has been 12.9 hours gross and the underfiring 1090 gross B.t.u. per pound of coal. The change from coal gas to furnace gas was made at 14 hour coking time, without difficulty and coking schedule immediately was reduced to 13 hours.

The coke is pushed at the same temperature as before, namely, 1800 degrees Fahr. with an average air port temperature of 75 degrees Fahr. This is less than when burning coal gas, due to the more uniform distribution of heat, which immediately became apparent in the wall temperatures and in the appearance of the coke, which is more uniform in temperature and in size of pieces.

From tests of the waste gas at the stack, it has been found that an amount of noncombustible impurities equal to the small amount carried in the fuel gas, is being carried out of the stack by the waste gas. There has been no increase in the routine labor of heating the ovens, other than inspection of the gas holder, which has been assigned to the heaters.

At the Theissen washer plant an average of 70 million cubic feet of furnace gas per day is being scrubbed in four washers, using 1.65 gallons of water per thousand cubic feet. This gas includes 6 million cubic feet used for dilution of coal gas for underfiring three batteries of older type ovens. The amount of noncombustible impurities in the gas going to the ovens has averaged 0.013 grains per cubic foot of gas.

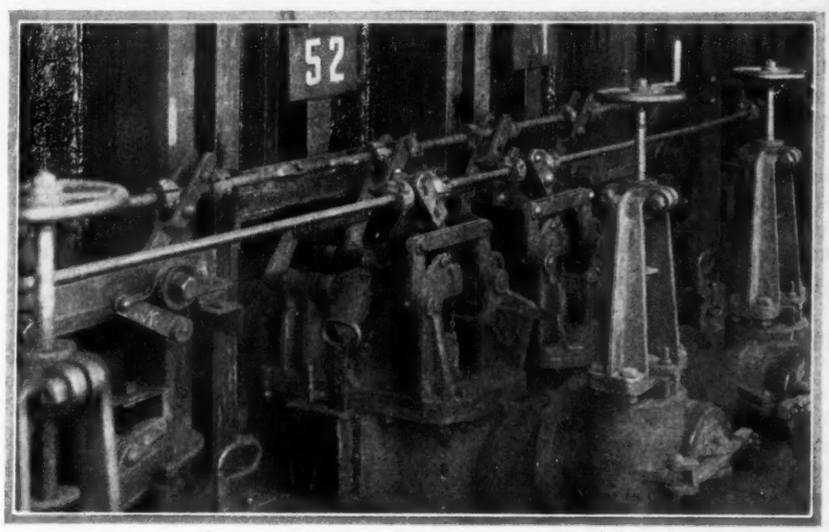
Only about 46 per cent of the coke from the Becker ovens is used in the furnaces. For this reason a typical energy balance is shown below for the case wherein the number of ovens heated with furnace gas is just sufficient to produce the coke required for the two furnaces. A coke yield of 70 per cent and a gas yield of 15,000 cubic feet of 570 B.t.u. gas per ton of coke is assumed.

	Net ton coke to furnace B.t.u.'s	%
At Furnace Plant		
Total in furnace gas	13,450,000	100.0
Used in Stoves	4,710,000	35.0
Underfiring ovens	3,110,000	23.2
Loss by bleeding (estimated)	680,000	5.0
Available for other purposes	4,950,000	36.8
At Coke Plant		
Total in coal gas	8,550,000	100.0
Surplus with coal gas heating	5,440,000	63.6
Released by furnace gas	3,110,000	36.4

For the typical case of coke and furnace plants thus balanced as to production, the furnace gas required to heat the ovens is less than one-half of that available after heating the stoves.

Based on operating results of the first three months, some of the advantages of underfiring coke ovens with blast furnace gas are:—

1. More uniform distribution of heat to the walls of the ovens and consequently to the coke.
2. More uniformity of temperature of coke as pushed, and of size of the pieces.
3. Notable improvement in smoothness of operation of the furnaces.
4. Greater uniformity of B.t.u. of furnace gas, resulting from easier operation of the furnaces.



Combination fuel gas, waste gas and air and waste gas boxes at regenerators

Research and Laboratory Supplement Is Issued

Completion of a supplement to the second edition of the Directory of Commercial Testing and College Research Laboratories has been announced by the department of commerce. Announcement of the text follows in part:

In this supplement is given a list of 23 additional commercial testing laboratories throughout the country with indications of the types of commodities which these laboratories report they are prepared to test. There is also included a list of laboratories of 13 additional colleges which are used not only for purposes of instruction but also to a considerable extent for research work.

The directory and supplement now gives information concerning 292 commercial testing laboratories, with 94 branch laboratories or offices, and laboratories of 199 colleges which are used not only for purposes of instruction but also to a considerable extent for research work. The title of this directory is "Supplement to Miscellaneous Publications No. 90."

The first wire suspension bridge in the United States, if not in the world, was built across the Schuylkill river, near the Falls of Schuylkill, Philadelphia, in 1816. Its use necessarily was restricted to foot passengers, and only eight passengers were allowed to be on the footway at one time.

Ententes and Syndicates Sell Most European Steel Tonnage

Membership of Entente Is Opened—Germans May Protest Quota—Nearly All Classes of Steel Protected by Some Form of Co-operation

By Vincent Delport

European Manager, Iron Trade Review

SPECIAL interest attaches at this time to the European steel entente, which was organized Sept. 1, 1926, to control production, inasmuch as members may give notice April 30 of their withdrawal Oct. 31. It has been reported that Germany is dissatisfied with its quota, producers of that country being assessed heavy fines because of excess production. At a meeting in Brussels, March 14, this matter will be dealt with, it is expected, and Germany's decision concerning membership may be determined at that time.

The steel entente, which was formed at a time when steel export prices were unremunerative and competition between the various producing countries on the continent was ruinous, undertook to conform production with demand. It is generally acknowledged that this goal has been attained. The entente includes the five original member-countries: Germany, France, Belgium, Luxemburg and the Saar; it also includes Czecho-Slovakia and the principal steelworks of Austria and Hungary. Poland has not yet joined, but negotiations still are being carried out. Great Britain is not a member, and it is not expected that country will join for the time being. Attempts have at times been made to expand the object of the entente and form international selling syndicates for semifinished steel and certain finished products, but these plans have not materialized, and under the present conditions of the markets, it does not seem likely that they will be brought up for the time being.

Next in importance comes the European rail makers' association, known as the ERMA, which, as a matter of fact, was formed several months before the steel entente itself, in the summer of 1925. The ERMA is a selling organization which fixes a minimum price for the export sales of rails and also divides orders between the members. It includes the continental countries and Great Britain, and its head offices are in London. The rail association now has been functioning for nearly four years and, on the whole, has given satisfaction, although discussions recently have been taking place owing to the fact that Great Britain has exceeded her quota in dominion markets, and this question also will be raised at the next meeting. The United States is supposed to be a party to the rail-makers' association, but not officially.

Rod Syndicate Formed

In the summer of 1927 the international wire rod syndicate was formed, which includes the continental countries. This syndicate also fixes minimum prices. Its existence is precarious, because according to the regulations of the association, its life depends on the formation of a syndicate of wire products manufacturers, and it has not yet been possible to form this syndicate. However, the wire rod syndicate has given satisfactory results, and each time the time-limit has been reached, its life has been extended.

These three organizations, the steel entente, the rail association, and the wire rod association, constitute the three big international syndicates which at present exist. In addition there is a comptoir between the producers of pig iron of France, Belgium and Luxemburg which fixes minimum export prices and which officially came into existence in January, However, previous to that date the three member-countries already were acting on the basis of an agreement. There also exists a syndicate for the export sales of hoops and bands, which includes France, Belgium, Luxemburg, Germany and the Saar district. This syndicate also fixes minimum prices. There is also an international tube cartel and an international association of wire rope manufacturers.

The above throws a light on the efforts made by European manufacturers to regulate production and markets by international agreements. National syndicates, however, also exist in individual countries. Germany is the country where these syndicates have existed and flourished for a long time. A German pig iron syndicate has been in existence for many years. In the past five years there has been formed the raw steel syndicate which controls the production of steel and, as a matter of fact, served as a model for the constitution of the steel entente. In addition there is in Germany an association called the Stahlwerksverband, which is really an association of 95 per cent of the steelworks of Germany; in this Verband are grouped a number of syndicates, of which the principal are: The A-products syndicate for semifinished steel, rails and heavy track material,

(*Concluded on Page* 654)

How Europe Syndicates Her Steel Selling

POSTWAR marketing conditions set the stage for the co-operative selling of iron and steel in Europe. In an accurate and concise manner the accompanying article sums up the activities in this direction. The various agreements which are analyzed are:

MAJOR SYNDICATES

European Steel Entente
European Rail Makers' association
Wire Rod association

MINOR COMPTOIRS

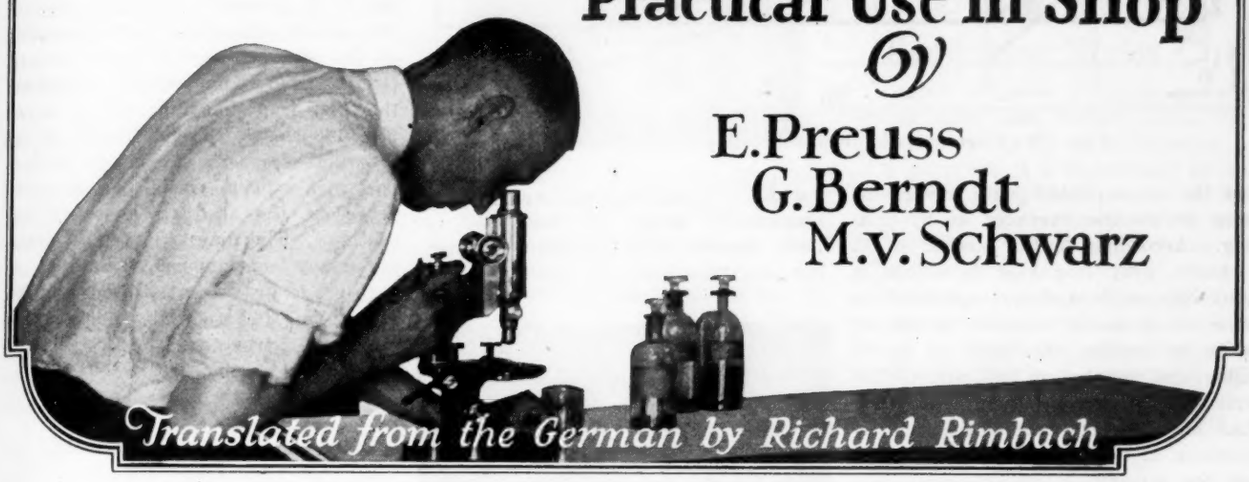
Franco-Belgian Pig Iron comptoir
International Tube cartel
International Wire Rope association
German Pig Iron syndicate
German Raw Steel syndicate
German Stahlwerksverband:—
- A-products syndicate
- Merchant Bar syndicate
- Plate syndicate
- Wire Rod syndicate
- Tube syndicate

French Office Statistique des Produits Metallurgiques:—
- A-products syndicate
- Rail syndicate
- Wire Rod syndicate

PARTIAL AGREEMENTS

Lorraine-Luxemburg-German agreement
France-Germany-Saar agreement Poland-Central European agreement

Metallography Simplified for Practical Use In Shop



By
E. Preuss
G. Berndt
M. v. Schwarz

Translated from the German by Richard Rimbach

Chap. X—Cast Iron (Continued)

ANALYSES of the various kinds of gray cast iron almost all show the same content of total carbon. It, therefore, is important to find the parts of graphite and combined carbon because the latter influences the strength favorably. The determination of sulphur, phosphorus, silicon and manganese is of equal importance. As shown in Figs. 136 and 137, the phosphorus content can be fairly well estimated from the etched section. In Fig. 136 large light areas of phosphide-eutectoid can be seen in an ordinary commercial casting with about 1.25 per cent phosphorus. Fig. 137, on the contrary, shows a low phosphorus cast iron with only about 0.1 per cent phosphorus in which these light isles are almost absent[25]. At low magnification and somewhat stronger etching with alcoholic nitric acid solution the characteristic light isles show up particularly clear. The microscopic examination of the structure of iron castings is important because no other method of examination gives such clear indications of the qualities of the material.

The most recent pronounced progress in the refinement of cast iron is due principally to metallographic examinations. The first pronounced increase in strength was obtained by the pearlite cast method which gives an almost purely pearlitic structure with comparatively fine graphite crystals, even with the variable sections. Fig. 135 shows a so-called pearlite casting at 1000 diameters magnification in which the lamellar structure of the pearlite can be seen. This is the most favorable structure for normal parts of machinery whereby a brinell hardness of 180 to 240 is obtained. The pearlite casting is the result of proper composition of the melt, corresponding casting temperature and cooling. The molds can be preheated strongly.

Another way is to reduce the carbon content of the melt to about 2.6 per cent (against about 3.4 per cent in ordinary gray iron castings). This

[25]Compare Schwartz: Metallurgy of iron, Berlin, Volume I, Goeschen 1924.

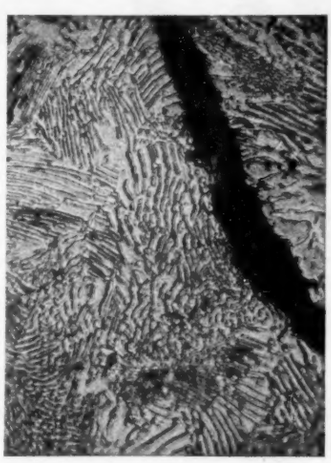


Fig. 135 (*Above*)—*Pearlite iron, magnified* 1000*X, etched microscopically*

Fig. 136 (*Left*)—*Commercial gray iron, etched microscopically, with high phosphorus content* (1.25 *per cent*) *which can be recognized in the many and large light islands of phosphide eutectic.* X 150

Fig. 137 (*Right*)—*Good gray iron with low phosphorus content* (0.10 *per cent*), *etched microscopically. Shows only traces of light phosphide eutectic.* X 150

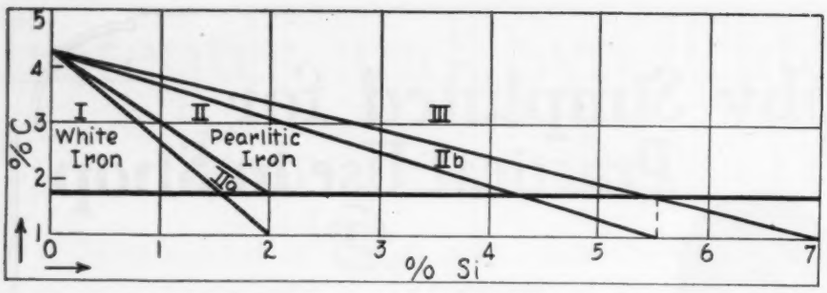


Fig. 138—Cast iron diagram according to E. Maurer

can be accomplished with reverberatory or electric furnaces or by jolting. According to the method of E. Schuetz, gray iron high in silicon is cast into molds and then subjected to a short annealing process which results in bending strengths up to 85 kilograms per square millimeter. The treatment of gray iron by annealing has many future possibilities and in addition to the advantageous influence on the structure, inner stresses also are relieved.

Ferrite Is Desirable

For some purposes such as for piston rings high values of strength are not desirable. Here, sometimes even a little ferrite should exist in the structure. The latter always is arranged around the graphite as Fig. 139 shows. Then follows the pearlite and in this the phosphide-eutectic is embedded as the last solidified part. The latter contains the entire phosphorus (about 0.5 per cent) of the casting and shows the characteristic indented shape which always leads to the conclusion that the constituent last eliminated from the melt fills in the gaps. For higher silicon contents and slow cooling, austenite, which has grown mostly around the graphite crystal nuclei of the melt is segregated. This takes place mainly in a temperature range of from 1100 to 1000 degrees Cent at slow cooling, but can take place by annealing the castings for a longer time at a lower temperature of about 850 degrees Cent.

Fig. 139—Fairly soft gray iron, etched microscopically. Shows dark graphite crystals, which are surrounded by a vein of white, soft ferrite, then pearlite, and in the light island therein is the phosphide eutectic (total phosphorus content about 0.5 per cent)

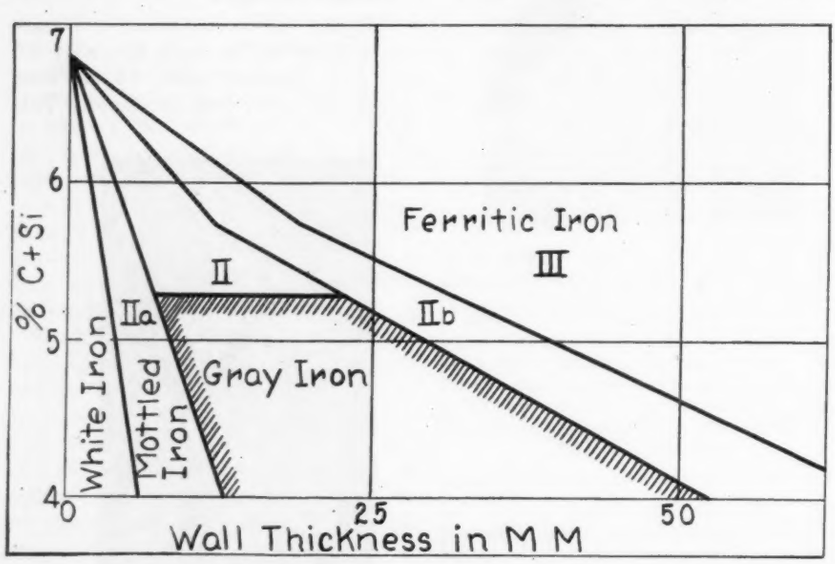


Fig. 140—Cast iron diagram according to Greiner and Klingenstein

The formation of the structure of cast iron is shown by the so-called cast iron diagram in Fig. 138, according to E. Maurer[26]. The influence of the silicon contents on the formation of the structure can be seen clearly. Greiner and Klingenstein[27] perfected the cast iron diagram still more, as Fig. 140 shows. The ordinates of the diagram represent percentage of carbon plus silicon, while the abscissae represent the wall thickness of the castings. The diagram permits drawing many conclusions. The area of high-grade gray iron is designated by II, while IIa and IIb indicate the transition structures to mottled and ferritic gray iron.

Cooling Rate Varies

When casting into iron molds the outer layer is cooled quickly. The inner parts, however cool comparatively slowly. This results in so-called chilled castings in which a hard and wear resistant layer of white iron is formed around a soft core of gray iron, as the section in Fig. 141 shows, while Fig. 142 and 143 represent the fine structure of core and edge (of another piece). The former clearly shows graphite crystals *G* in the ground mass of ferrite and pearlite, while the edge zone shows light cementite veins *Z* and pearlite *P*. In the transition zone, these different structures are found side by side. Such cast iron sometimes is called "halved." This local hardening is technically of importance, because it requires only the arrangement of iron chills at the respective places. Car wheels with hard treads, which are difficult to machine with cutting tools, rolls, etc. are made in this way. The parts not chilled, gray or halved parts, on the other hand, can be machined easily.

During the war the phenomenon often was observed that in casting, a core of white and an edge of gray iron was formed (see Fig. 144) which according to Osann, was designated as reversed chilled casting. How it is formed has not yet been explained. It can only be said with certainty that it occurred especially when melting rusty scrap iron. Osann tried to explain it by the undercooling due to the large contents of ferrous oxide. High content of phosphorous also was given as a reason. Here, however, the phenomenon did not always occur but an extraordinarily high con-

[26] Giesserei-Zeitung 1924, November 21.

[27] Zeitschrift des vereins deutscher ingenieure, Volume 70, Page 388, 1926.

tent of sulphur (observed up to 0.44 per cent) seems to be a reason, especially at comparatively low contents of carbon and manganese[28]. Sulphur, similar to manganese, tends to retard the segregation of graphite. Since sulphur iron has a low melting point (950 degrees Cent.) it gets richer in the core and produces here a strong undercooling so that solidification takes place rather abruptly and thereby white cast iron is formed[29].

Contrary to gray, white or chilled iron, the term steel casting is understood to mean carbon steel cast in the liquid state into molds. Its structure consists, with contents of carbon under 0.9 per cent, exactly as with rolled or forged steel, of ferrite and pearlite. The nonexistence of cementite and graphite distinguishes it clearly from the different kinds of

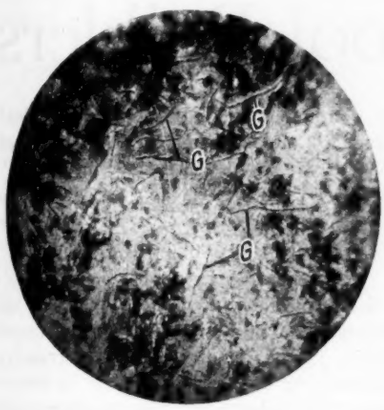


Fig. 142—Chilled iron, gray core, etched microscopically. Structure is ferrite, pearlite and graphite. X 52

cast iron. Further details on cast steel will be given in Chapter XI.

[28]This sulphur disease, which was much dreaded in gray iron foundries immediately after the war, results in nonhomogeneous castings, but can be eliminated entirely by the desulphurization process by R. Walther.

[29]Frei, Giesserei Zeitung, Volume 17, Page 109, 1920.

A.I.E.E. Regional Meeting Scheduled for March

Arrangements have been completed for the regional meeting of the American Institute of Electrical Engineers, March 20 to 23, at Hotel Gibson, Cincinnati. Four technical sessions are arranged to include such subjects as power stations, transmission, distribution, mercury rectifiers, generators, railway power economics, welding of buildings and machines, steel rolling, high-speed instruments, current transformers, illumination of airports, telephone construction, etc. A session on student branch activities will be held Thursday morning, March 21. Luncheons of branch counselors and

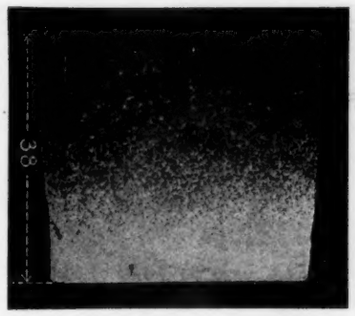


Fig. 141—Chilled iron etched microscopically. Structure is ferrite, pearlite and graphite. X 52. (O. Bauer and E. Wetzel)

chairmen will be held March 20 and 21.

Inspection trips to United States experimental station, Wright Field, Dayton, O.; Union Gas & Electric Co. and Cincinnati Street Railway Co.; Andrews Steel Co., Newport, Ky.; Crosley Radio Corp. transmitting station, Mason, O., and Champion Coated Paper Co., Hamilton, O., have been scheduled. The convention dinner will be held at Hotel Gibson at 7 p.m., March 21. At this dinner it is planned to have addresses by R. F. Schuchardt, president of the institute, and other well-known speakers.

To Make Corrosion Tests

Announcement was made by the department of commerce Feb. 20, that tests designed to lessen corrosion from sulphur compounds contained in crude petroleum storage tanks will be conducted by the bureau of mines in connection with private concerns. So serious has the problem of corrosion become that in some oil regions it is necessary to replace one tank out of every five each year. A plan of investigation was outlined to determine the relative resistance and adaptability of tanks made of steel and aluminum, at a recent conference between representatives of the bureau of mines and co-operating companies.

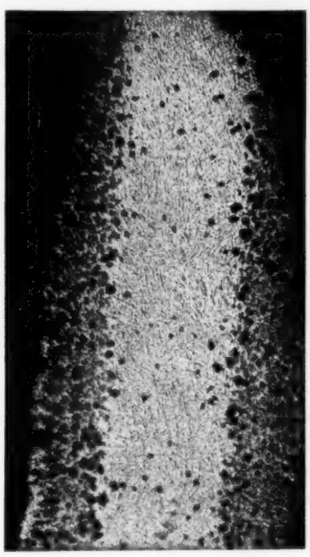


Fig. 144—Reversed chilled iron in cross section, etched microscopically. (K. Harnecker)

Sandpaper Styles Cut

Coated abrasive products in spot stocks have been reduced from 8000 varieties to 1976, an elimination of 75.3 per cent, it is announced by the division of simplified practice of the department of commerce. More than 600 concerns in 44 states have accepted the program.

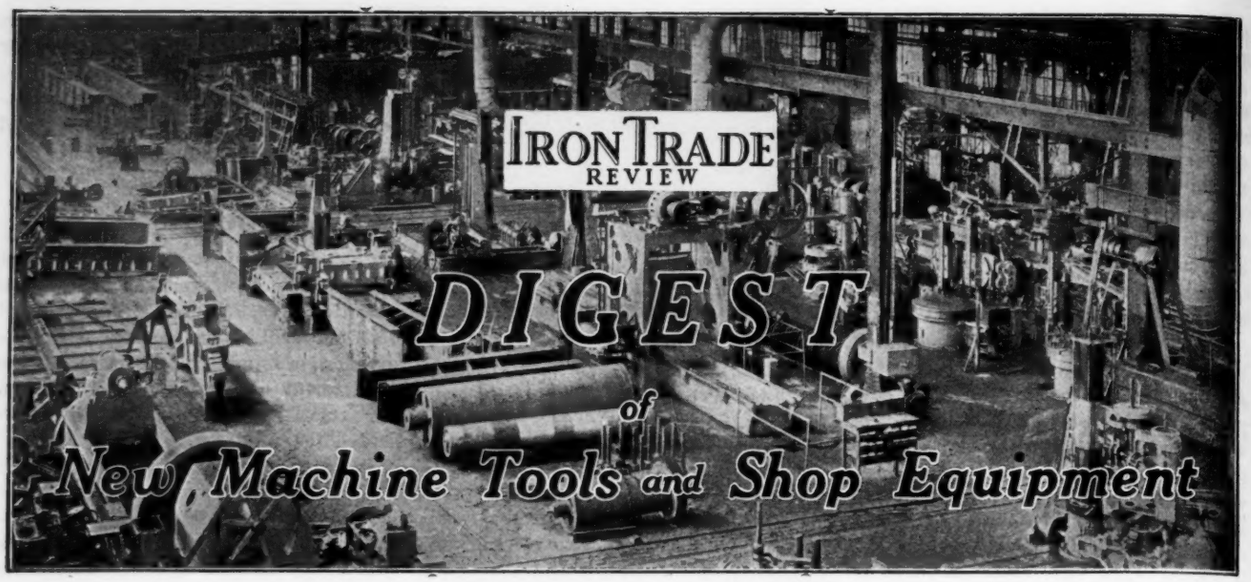
Increase of sizes and varieties of coated abrasive products each year led to a request for simplification to avoid necessity of carrying stock which had almost no turnover. Further revision from time to time will be undertaken by a committee representing all interests.

Fig. 143—Chilled iron, white edge, etched microscopically. Structure is pearlite and cementite. X 52

Will Study Metallurgy

Beginning March 4, a 17-week course in practical metallurgy will open in the Manufacturers' Association of Connecticut Inc. headquarters, Hartford, Conn. This course is available to plant managers, superintendents, draftsmen, inspectors, designers and foremen. Those concerned either directly or indirectly with the application of metallurgical principles to the industrial problems are invited to attend the first two sessions without obligation.

Only three tunnel kilns were in operation in this country before 1915. At the beginning of this year over 150 kilns of this type were being used in the United States and Canada by the ceramic industry and many more for annealing black plate and steel sheets.



Dill Bill Would Affect Tool Builders

EVEN under the very best of conditions, the security afforded through possession of a United States patent is uncertain. The topic is of vital importance to machine tool builders because in many cases the very success of the company depends on the favorable situation regarding patents. In view of this condition, it is rather surprising that senate bill No. 2783 proposed by Senator Dill was not fought more effectively by the machine tool industry.

The bill provides for the forfeiture of patent rights in case of conviction under laws prohibiting monopoly. The arguments of the commissioner of patents to the effect that passage of this bill not only would prove disastrous to many small companies but also would go far to destroy the whole present patent system apparently did not carry any weight with the proponents of the bill.

Builders of American machine tools owe such a large measure of their success to patents that they should be in the foreranks of those who are honestly opposing the Dill bill.

* * *

IN THE January issue of *Machinists Monthly Journal*, official organ of the International Association of Machinists, Ethelbert Stewart, commissioner of the bureau of labor statistics, is quoted as saying that "the moron is coming to be considered the ideal worker under modern methods of mass production by automatic machinery." Mr. Stewart dwells at length on the sociological aspects of the machine age and then concludes:

"We certainly are not going to abolish the machine. Neither can we allow it to make robots of the human race. An immediate and progressive shortening of hours of labor is necessary in order that the worker may have time to study and play."

Perhaps Mr. Stewart implies no condemnation of machinery in his remarks, nevertheless, these questions come to mind:

(*Concluded on Page* 653)

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date Described	Page
Lighting unit	For high bay lighting; reflector of prismatic glass	Holophane Co. Inc.	29	Feb. 14	469
Drop hammer	Improved accuracy and operation on board drop hammer	Chambersburg Engineering Co.	30	Feb. 14	469
Floor charger	Auto electric type; serves heating furnaces, presses, etc.	Edgar E. Brosius Inc.	31	Feb. 14	471
Taps and dies	Collapsing taps and opening dies with removable chasers	National Acme Co.	32	Feb. 14	471
Buckets	Digging and rehandling buckets; variety of sizes	Owen Bucket Co.	33	Feb. 14	472
Exhauster	For grinding and polishing machines; motor driven	Hisey-Wolf Machine Co.	34	Feb. 14	472
Woodworking machine	Portable electric; 29 different cutting operations	DeWalt Products Corp	35	Feb. 14	472
Cutting machine	Oxyacetylene unit for curved and straight cutting	Air Reduction Sales Co.	36	Feb. 21	528
Grinder	Ball bearings; fine and coarse wheels	United States Electrical Tool Co.	37	Feb. 21	529
Compensator	Exposed sparking eliminated by new contact method	General Electric Co.	38	Feb. 21	529
Buffer	Performs polishing and buffing operations	Hill-Curtis Co.	39	Feb. 21	529
Relays	New line of temperature overload relays	General Electric Co.	40	Feb. 21	529
Indicator	Detects presence of combustible vapors in air	Union Carbide Sales Co.	41	Feb. 21	529
Floor armor	Steel mat for reinforcing concrete and asphalt floors	Blaw-Knox Co.	42	Feb. 28	591
Welding rod	High-strength welding rod for bronze welding operations	Oxweld Acetylene Co.	43	Feb. 28	591
Grinder	Heavy-duty type; duplex tables may be uncoupled	Cincinnati Grinders Inc.	44	Feb. 28	592
Compressors	Eleven models ranging from ¼ to 5 horsepower	Curtis Pneumatic Machinery Co.	45	Feb. 28	593
Electrode holder	Water-cooled; for use in manual carbon arc welding	Lincoln Electric Co.	46	Feb. 28	593
Grinder	Equipped with attachment for grinding large cams	Norton Co.	47	Feb. 28	593
Screwnail	For fastening sheet metal and wood; driven in	Parker-Kalon Corp.	48	March 7	651
Crank grinder	Work need not be removed to grind crankshaft pins	Landis Tool Co.	49	March 7	651
Generating set	Diesel engine connected to 40-kilowatt generator	Buda Co.	50	March 7	651
Drill	For drilling, burring or countersinking; dial plate feed	Kent Machine Co.	51	March 7	652
Acetylene generator	Used with low or medium pressure welding blowpipe	Oxweld Acetylene Co.	52	March 7	652
Clutch	Automatic and mechanical accelerating type	Worcester Polytechnic institute	53	March 7	652
Magnetic probe	To remove steel particles from flesh or eyes	V. Mueller & Co.	54	March 7	652
Grinding machine	Universal type with reversible wheel stand motor	Brown & Sharpe Mfg. Co.	55	March 7	653
Grinder	Swing frame type for foundry snagging work	Kinney Iron Works	56	March 7	653
Pouring device	Hand operated; ball bearing equipped	Modern Pouring Device Co.	57	March 7	653

Designs Nails To Fasten Metal and Wood

No. 48

Parker-Kalon Corp., 352 W. Thirteenth street, New York, has placed on the market a new type of nail for fastening sheet metal to wood, which has four times the holding power of ordinary nails, laboratory tests at Columbia university disclosed. The product is called screwnails because the qualities of both a nail and a screw are incorporated in the design and construction. It is driven like a nail and holds like a screw.

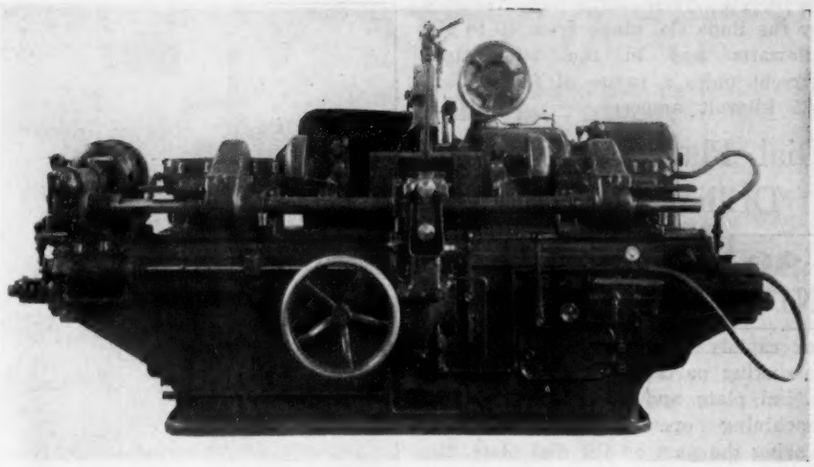
The hardened spiral thread and needle-pointed pilot enables it to be driven through much heavier sheet metal than ordinary nails without bending, it is claimed. With a thread formed in the metal burr and wood, screwnails securely hold the two together.

New Machine Facilitates Crankpin Grinding

No. 49

Landis Tool Co., Waynesboro, Pa., announces the development of a new model crank grinder which permits all the pins of a crankshaft to be ground without removing the work from the machine.

The work spindles are driven through a longitudinal shaft so that both fixtures are rotated in unison, the power being supplied by a 2-horsepower motor driving through a worm and worm gear. The final drive to each work spindle is through a silent chain. Crank carrying fixtures with hydraulically operated work clamps are provided.

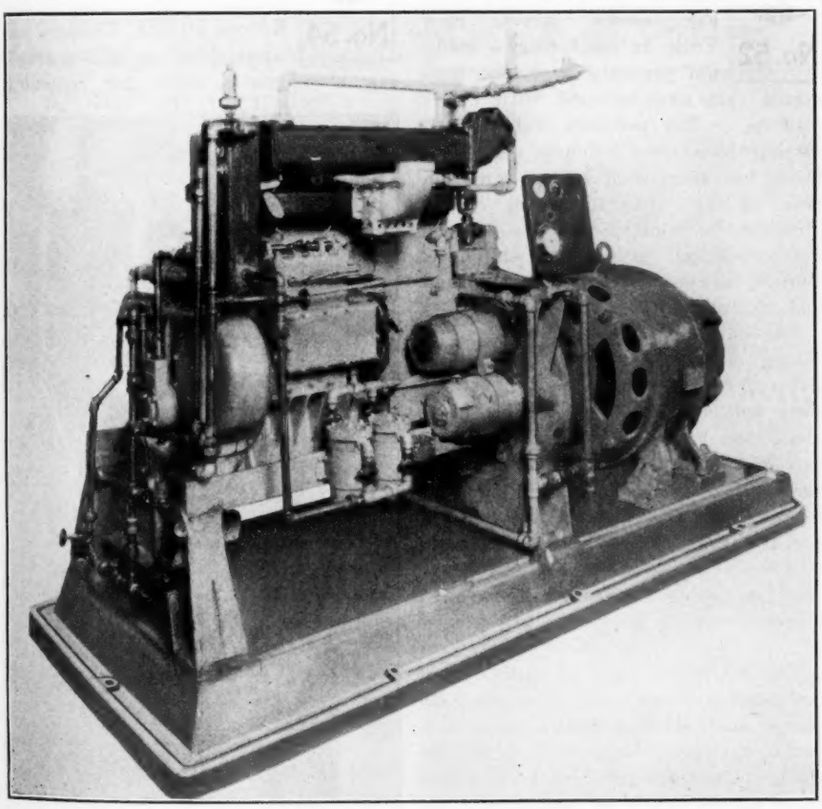


No. 49—Unit which grinds crankshaft pins, removal of work being unnecessary

The hydraulic work rest is rigidly attached to the bed of the machine so that it is directly in front of the grinding wheel regardless of the pin being ground. All necessary oil pressure is supplied by a twin-geared ball bearing oil pump.

The grinding wheel head is equipped with a 36-inch diameter grinding wheel and is carried by a V and a flat guide with chilled surfaces. Special design adjustable steel babbitt-lined bearings are used. The hydraulically-operated power wheel feed is controlled by several levers close to the feed-up hand wheel, the speed of the infeed after the wheel comes in contact with the work being regulated by a dash pot.

The main drive 25-horsepower motor is mounted on the rear of the machine with its pulleys directly in line with the pulleys on the wheel spindle and transverse oil pump. An eight strand texrope drive conveys the power. Coolant is supplied by a centrifugal pump. This type of machine is available in sizes 16 x 32 inches and 16 x 42 inches.



No. 50—Diesel engine generating set operating a 40-kilowatt generator

Builds Special Type of Diesel Engine

No. 50

Buda Co., Harvey, Ill., has built to order for the Western Union Telegraph Co., for use in its San Francisco office, a diesel engine generating set. Incorporated in the design and construction of the set are a number of special features. The generator used is a 40-kilowatt, 120-240 volt, operating at 800 revolutions per minute. A special overspeed, safety stop was fitted to the fuel injection pump and a special fuel oil tank, fuel transfer pump, cooling water regulator and simple protective device were also supplied.

Starting is by an electric unit operated with a magnetic type switch on the control panel. In addition, the control panel carries a lubricating oil pressure gage, a thermometer for the cooling water, and a tachometer showing engine speed. The weight of the unit is 10,400 pounds complete. Simi-

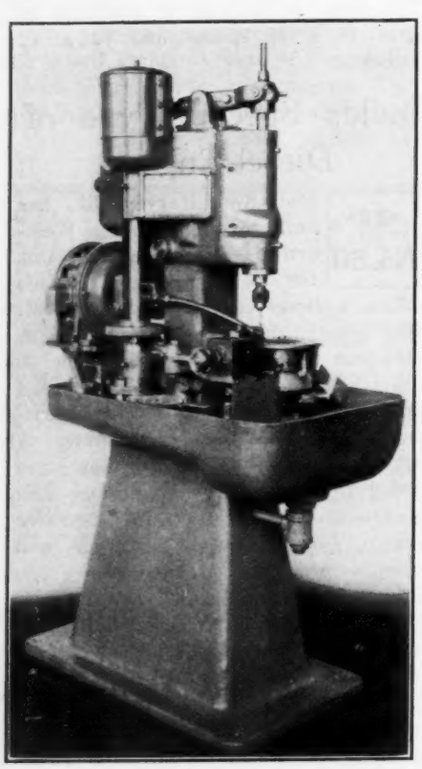
lar direct-current units manufactured by the Buda Co. range from 40 to 100 kilowatts and in the alternating-current units a range of from 50 to 125 kilovolt amperes.

Dial Plate Feed Speeds Drilling Operations

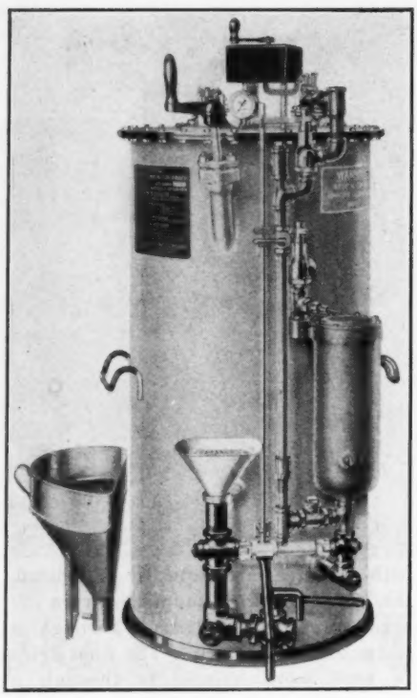
No. 51

Kent Machine Co., 268 North Water street, Cuyahoga Falls, O., is placing on the market a machine designed for rapidly drilling, burring or countersinking parts which can be fed by a dial plate and clamped during the machining operation. Aside from placing the part on the dial plate, the action of the machine is continuous and automatic. A special dial feed and clamping mechanism for various work within the capacity of the machine can be arranged, making it universal in its adaptation yet special for each different piece to be drilled.

When drilling into cap screws and similar parts, the dial carries the part to position under the spindle, where it is centralized by a pair of jaws which grip the part by the body. After the parts have been drilled the dial plate carries them around to the discharge chute. It is possible to regulate the revolutions per minute of the cam shaft which controls the timing operations. The capacity of the machine is up to ⅜-inch diameter drill in steel, ¾-inch deep. Machines are available with



No. 51—Drill with dial plate feed



No. 52—Acetylene generator

cone belt drive or constant speed motor drive and in either the pedestal mounted or bench type. A 2-horsepower, 1200 revolutions per minute motor is required.

Acetylene Generator Is Built for Strength

No. 52

Oxweld Acetylene Co., 30 E. Forty-second street, New York, is marketing a medium pressure acetylene generator that can be used with either medium or low pressure welding and cutting blowpipes. Heavy gage material has been used in the construction of the generator and where strength is required of the fittings, steel castings have been employed. Joints between the generator shell and fittings are bronze welded.

The carbide valve is rotated by a spring clock motor which in turn is governed by a diaphragm type motor feed control. A pin in the stem above the valve prevents bridging of carbide and possible stoppage. Pressure adjustment is made by thumbscrews and close regulation permits operation of the generator near the 15 pounds per square inch limit without loss of gas through the relief valves when the blowpipes are turned off.

The hydraulic back pressure valve and filter are contained in a seamless drawn shell with a flange cover and outlet casting, bronze welded to the shell. The hydraulic back pressure valve automatically is drained and refilled every time the generator water is changed. With a full charge of carbide and water, the total weight of the generator is 623 pounds. When empty it weighs 305 pounds.

Accelerating Clutch Has Centrifugal Cams

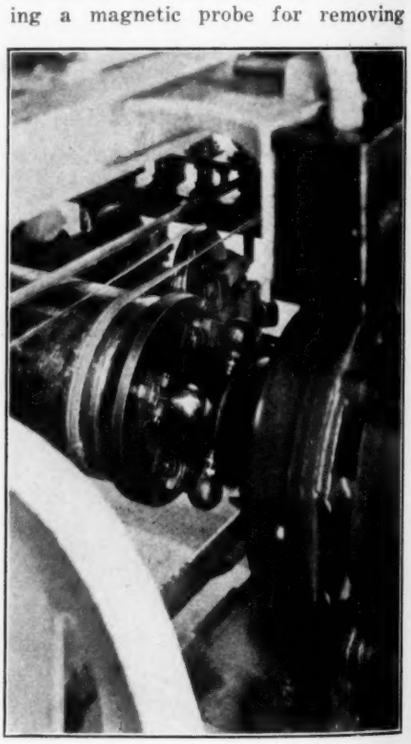
No. 53

Washburn shops of the Worcester Polytechnic institute, Worcester, Mass., has developed and placed on the market an automatic mechanical accelerating clutch. The principle on which the clutch operates is similar to the ordinary disk clutch except that the cam action instead of being operated by hand is controlled by centrifugal force which automatically engages with the speed of the machine. The centrifugal cams are on the driven side of the clutch so that in starting the only load on the motors is the slight spring pressure on the friction disks. This spring action is sufficient to slowly turn the machine shaft. As soon as this operation starts the centrifugal action of the cam takes place, increasing the pressure on the disk and in turn increasing the speed of the driven shaft. This cycle continues until the machine is at full speed.

Steel Splinters Removed by Magnetic Probe

No. 54

V. Mueller & Co., Ogden avenue, Van Buren and Honore streets, Chicago, are manufacturing and marketing a magnetic probe for removing



No. 53—Accelerating Clutch

iron and steel particles from the eyes and flesh of workmen. The magneprobe as this little instrument is known, is a powerful magnet the size of an ordinary lead pencil. One end is sharpened to a point, pencil fashion, for removing particles from the eye, and the other is flattened for use in cases where the fragment has penetrated into the flesh.

The magnetic probe is made of Honda high-cobalt steel which has remarkable magnetic properties. With ordinary care the probe will retain its magnetic strength indefinitely. As

No 54—Magnetic probe

it is made of rust resisting steel, it is not plated and may, without damage, be sterilized repeatedly by boiling. The magnetic probe being so small and light in weight may be carried in the pocket.

Reversible Wheel Stand Motor on Grinder

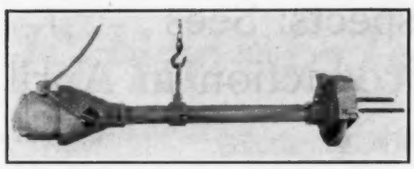
ITR No. 55

Brown & Sharpe Mfg. Co., Providence, R. I., recently announced a further addition to its line of universal grinding machines—the motor driven No. 1 universal grinding machine.

One of the important features of this machine is the reversible wheel stand motor which is reversed when the machine is used for internal grinding with the internal grinding attachment. Hence, it is not necessary to swivel the wheel stand platen to a reverse position. The motor may be reversed by a lever and the internal grinding attachment spindle is driven in the proper direction.

The base is cast in one piece, and is supported at three points. The bed is long in order to support the table at its extreme travel. The crossfeed slide is counterweighted to eliminate backlash and the pull may be reversed for internal grinding.

The motors are mounted integrally on the headstock, on the wheel stand and at the rear of the machine. They



No. 56—Swing frame grinder

are carefully balanced before the machine leaves the factory. The machine is furnished fitted with motors only.

Snagging Work Done by Swing Frame Grinder

ITR No. 56

Kinney Iron Works, Twenty-eighth street and Santa Fe avenue, Los Angeles, has placed on the market a heavy duty swing frame grinder especially adapting for snagging in iron and steel foundries, billet grinding, oil tool dressing, and rail and frog grinding. The motor is connected directly to the wheel through a flexible coupling and heavy shaft. Both ends of the shaft are mounted in heavy dust-proof bearings with which the motor is equipped. The wheel runs at right angles to the frame thereby enabling the operator to see his work at all times. Additional equipment includes a wheel guard which may be rotated to either side of the wheel. A sliding collar, by which the grinder is suspended, permits balance as the wheel wears. Infrequent lubrication is said to be its only maintenance.

Pouring Device Entirely Hand Operated

ITR No. 57

Modern Pouring Device Co., Port Washington, Wis., is producing a hand operated pouring device. The machine is raised by a hand wheel acting on a train of gears. This wheel is located at an accessible point so that a 400-pound ladle can be raised while pouring molten metal and the minute adjustments, which can be obtained, make it adaptable for light bench and floor work.

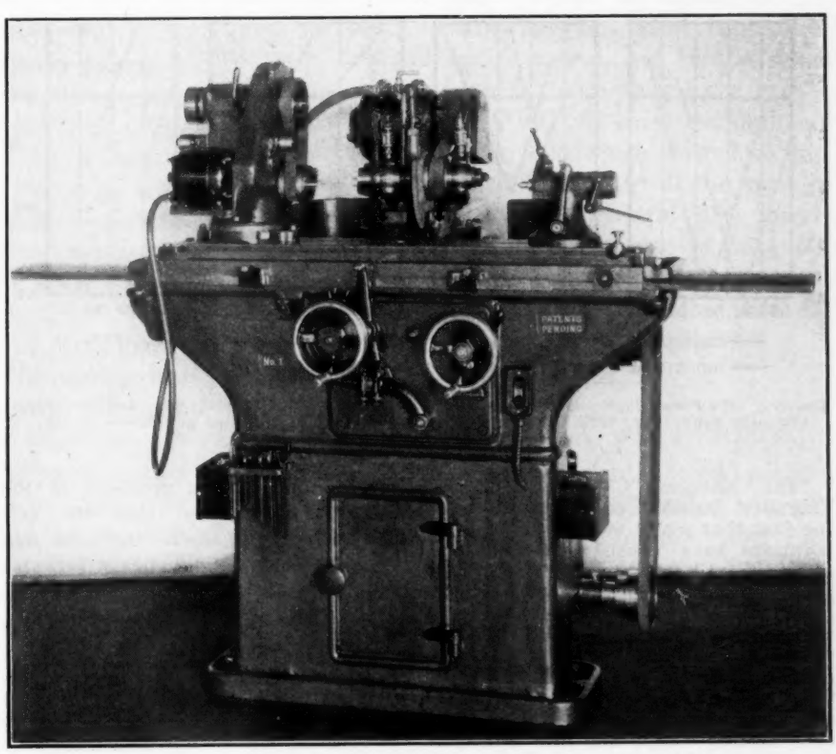
The machine is lowered automatically by releasing the dog on the raising ratchet. All load sustaining parts are made of steel and all rotating members operate on ball or Hyatt roller bearings in a continuous bath of oil. It rotates on a swivel at the upper end and therefore is suited for pouring both sides of mold conveyors.

Dill Bill Would Affect Tool Builders

(*Concluded from Page* 650)

1. Isn't it a fact that instead of *producing* morons, mass production offers employment for morons who otherwise would find it difficult to find jobs?

2. Are not improved machines the most logical means of increasing production and thereby permitting the shortening of work hours, which Mr. Stewart says is so necessary?



No. 55—Universal grinding machine with reversible wheel stand motor

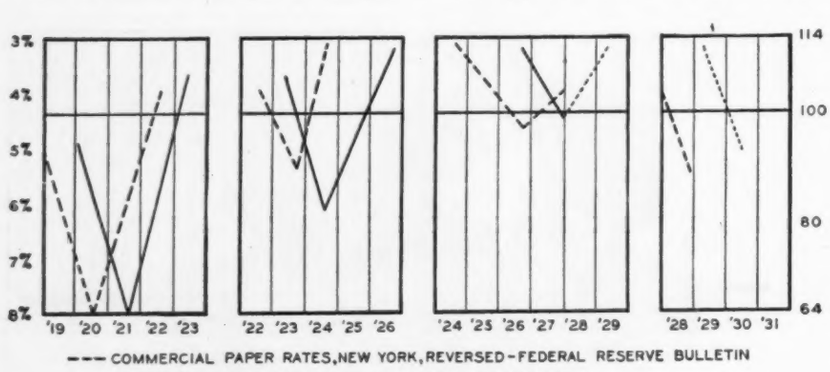
Scans Business Prospects; Sees Turndown in April

IN THE March 1 issue of *Looking Ahead*, a forecast of business prospects published by Alvan T. Simonds, president, Simonds Saw & Steel Co., Fitchburg, Mass., the prediction is made that a turn-down in business volume will occur in April, 1929. Commenting on business conditions, Mr. Simonds says:

"It is generally agreed that our prosperity in time of peace is greater when other nations are prosperous. Hard times in Europe will reduce our prosperity. So far as general welfare is concerned, the time is fast coming when the world must be considered as a single variable. Stock speculation in the United States increases the cost in England of money borrowed for carrying on business. The increased cost there causes increased cost in continental Europe, and so on.

"The chart shows what will happen to the trend of business in 1929 and 1930 if changing cost for borrowed money is to affect it as it invariably has since the war. It has been showing this since Jan. 1, 1928.

"The deplorable situation in the stock market is blamed chiefly upon individuals and corporations that have in addition to the banks, provided funds for such speculation to the amount of $2,615,000,000—an increase of such loans in the last year of $1,563,000,000. In the July issue of *Looking Ahead* we intimated that business men were short sighted in making such loans, for they were bound to cause a decline in business.



The two light dotted lines—one running up from Jan. 1, 1928 to April, 1929, and the second running down from April, 1929 to the middle of 1930—are estimated movements in the trend of industrial production

"The National City bank in its February bulletin calls attention to the fact that many of the leading corporations have 'consistently abstained from the call loan market,' thus supporting the federal reserve board in its efforts to prevent increasing commercial paper rates. The bulletin names as among these, the United States Steel Corp., American Telephone & Telegraph Co., General Electric Co., American Radiator Co., General Motors Corp. and the National Biscuit Co.—'the very aristocracy of American industry.'

"They without doubt have taken this stand, not because of lack of available funds, but because they were clear-seeing enough to know that it would help business in the end and thus prove more profitable to them.

"The chart does not necessarily indicate that total business for 1929 is to be lower than that for 1928. It may be greater as 1926 was greater than 1925. The chart only shows that there is ahead of us a turn-down in business volume and that the turning point will probably come in 1929. Our estimate puts the date at about April, 1929; but it may not come until the fall, as it did in 1926. We fear, however, that it will come earlier, because of the decided falling off in building contracts from the June, 1928, index of 107 to the January, 1929, index of 86."

Name 14 on Penn State Advisory Board

Fourteen prominent men in the iron and steel industries of Pennsylvania have been appointed to form a metallurgical advisory board, covering iron and steel, for the School of Mines and Metallurgy at Pennsylvania State college, according to an announcement made recently by Edward Steidle, dean of the school of mines and metallurgy.

The board will assist the college in working out various problems of the school of mines so that the college may better serve the iron and steel industries of the state. The program of the college embraces first, fundamental education and extension courses that fit the requirements of the industries, and second, applied research and investigation.

The following have been appointed as members of the metallurgical advisory board: F. D. Andrews, general superintendent, Harrisburg Pipe & Pipe Bending Co., Harrisburg; L. R. Custer, general manager, Cambria works, Bethlehem Steel Co., Johnstown; A. N. Diehl, vice president, Carnegie Steel Co., Pittsburgh; Dr. H. L. Frevert, vice president, Midvale Co., Nicetown, Philadelphia; Dr. H. W. Gillett, chief, division of metallurgy, United States bureau of standards, Washington; T. M. Girdler, president, Jones & Laughlin Steel Corp., Pittsburgh; C. W. Heppenstall, president, Heppenstall Forge & Knife Co., Pittsburgh; Dr. C. H. Herty Jr., supervising metallurgist, United States bureau of mines experiment station, Pittsburgh; Roy C. McKenna, president, Vanadium Alloys Steel Co., Latrobe; E. J. Poole Sr., vice president and general manager, Carpenter Steel Co., Reading; O. C. Skinnner, works manager, Standard Steel Works Co., Burnham; H. C. Thomas, president, Alan Wood Iron & Steel Co., Philadelphia; and F. M. Waring, engineer of tests, Pennsylvania railroad, Altoona.

Syndicates Sell Steel

(*Concluded from Page* 646)

the merchant bar syndicate, the plate syndicate, the wire rod syndicate, and the tube syndicate. Any orders are sent to the Stahlwerksverband, which passes them on to the syndicate interested. These orders then are divided among the various works. Minimum prices also are fixed by these organizations, of which the central offices are grouped in one building in Dusseldorf.

In France at present there is an organization known as the Office Statistique des Produits Metallurgiques (O. S. P. M.) which fixes the price of pig iron and allocates the tonnage to be sold to the foundries. There is one syndicate for A-products, similar to the German one, which fixes minimum prices of semifinished steel and beams. There is a rail syndicate and a syndicate for wire rod. In Poland and Czecho-Slovakia there also are syndicates run on similar lines.

Mention should be made of certain partial agreements which exist between the producers of certain countries, such as the Lorraine-Luxemburg-German agreement which covers the exchange of pig iron and steel products between the countries involved. There is also an arrangement between France, Germany and the Saar district. Partial agreements of the same kind exist between Poland and the central European states, and a similar agreement now is being negotiated between Poland and Germany.

Editorials

A Man for the Times

WITH the inauguration of Herbert Hoover as President the ascendancy of industry and commerce in the present-day life of the United States is complete. Not a lawyer nor a statesman nor a politician but a business man with engineering training and a comprehensive experience in administration is at the helm of the federal government for the coming four years.

It is singular though rarely apprehended save in retrospect, that the times develops the President. When the nation was young there were Washington and Jefferson and Adams and Monroe to guide it. The period of territorial expansion was undertaken with the military men of the frontier in the saddle. The challenge of slavery was met with a Lincoln.

Only a Roosevelt would have been consistent with the early days of this century. Time doubtless will prove that Wilson was the type for the White House during the World war, and that Coolidge was a highly desirable balance wheel in the postwar adjustment. And now—be it predestined or merely fortuitous—when the nation is business-minded, when to industry and commerce are attracted the talent and the capital of the nation, a Hoover comes on the scene of government.

At this time it appears that no man has ever met the specifications of the times for leadership as does Mr. Hoover. He brings to his high office executive ability, ambition to serve, experience in commerce and a love for humanity, tempered with a desirable appreciation of the practical politics requisite for accomplishment. His cabinet is the type that might be expected of the man; it will be a tool to effect his ends.

It may be that the qualifications of Mr. Hoover will also be his chief liabilities. The nation has had a decade of unparalleled prosperity. It looks to him a continuance of this happy condition. It will expect feats of economic ledgerdemain and by the same token be as critical of failure. Thinking men will support the President and know that, with given facts and conditions, Mr. Hoover will do a better job than anyone else could have.

The inauguration now is history. Soon there will be a special session of congress and then indeed the honeymoon of the new administration will be over. If the past is any criterion the day-to-day record of the Hoover administration will justify the popular faith, evidenced at the November election, in the man.

Iron Ore Tax Relief in Sight

AFTER many years of oppressive taxation in the state of Minnesota, the iron mine companies have a fair chance for obtaining some relief from the legislature now in session. While it has been necessary for the iron and steel industry to obtain a certain tonnage of iron ore from Minnesota, no matter how unfavorable the terms, the discrimination against the mining interests finally has reacted against the state. The underground mines have not been worked as formerly, throwing thousands of miners out of employment, and paralyzing the business of the small mining towns. The operators have been compelled to center their efforts on the open pits, using the best mechanical equipment, where the ore is most easily mined, with fewer miners, and at a minimum labor expense.

The total tax paid by the iron mining interests in a year such as 1928, when shipments from the state amounted to 38,600,000 tons, is approximately $25,000,000. First there is the ad valorem tax, taking about $20,000,000 annually, and three other forms of taxation, tonnage, occupational, and royalty. There is reason to believe, as the operators always have contended, that the tonnage tax is illegal, but in the seven years that it has been in force they have had to pay more than $22,000,000 on this one item.

A committee of the legislature now has recommended a reduction from 6 to 4 per cent in the tonnage and royalty taxes and also lowering the assessed value of the mines to 33½ per cent of their estimated true value. The opposition that has developed has as its immediate objective the postponing of action until 1931.

Detroit Sets Up Its Own Industry

TAKE Detroit as the center and with a radius of approximately 85 miles you can ring one of the largest iron and steel consuming areas in the world. Originally noteworthy as a foundry center, it has developed a near-monopoly of automobile production, and now the aircraft industry there is making great strides. Only the greater Chicago industrial district takes a comparable tonnage of steel.

Down the Detroit river, or past the front door

of this attractive market, is carried 90 per cent of all the Lake Superior iron ore that is mined. Up the river goes all the coal destined for upper lake ports. Within 100 miles, with cheap water transportation, are large supplies of limestone. Yet this district has virtually been without any steel production, if the nonmerchant output of the Ford Motor Co. is excluded.

Now, with the organization of the Great Lakes Steel Corp., this condition seems about to be remedied. Just south of Detroit is to be built a steelworks self-contained from open hearths to finishing mills. The initiative and the capital come from interests identified with the Michigan Steel Corp., now operating a sheet mill near Detroit; the M. A. Hanna Co., which has two blast furnace stacks adjacent to the Great Lakes site, and some important consumers of the products the new mill will roll.

It is significant that the impulse is local. The larger steel producers of the Pittsburgh, Chicago, Youngstown and Cleveland districts have sent many thousands of tons of products annually into this district, but have made no serious move toward setting up a local industry. True, the United States Steel Corp. made a beginning across the Detroit river, but a duty would apply. Detroit has long believed that production should be attracted by consumption, and now undertakes to prove the point.

There has been some discussion of the eventual absorption of the new properties by one of the existing large independent producers. On this score the dissolution suit decision debars the United States Steel Corp. One of the most valuable steel properties in the country is the Inland Steel Co. at Chicago, apparently necessary for any western extension of eastern producers. The Great Lakes Steel Corp., having proved itself, may well hold the key to the Detroit district.

Bonds Give Way Before Stocks

DECISION of directors of the United States Steel Corp. to supplant bonds of the corporation with common stock denotes not only sensitiveness to the recent trend in financing but also the new spirit which has entered the counsels of the corporation. It is planned to increase the common stock from 7,533,210 shares to 12,500,000 shares of $100 par value. The corporation has outstanding a funded debt of $474,664,899 and if all of this is retired there will be an annual saving in interest charges of $29,347,350.

The effect of this change will be to stabilize the financial position of the corporation. In times of small earnings it will be possible to retrench in the matter of dividends, if necessary. At the same time, the larger number of shares of common stock outstanding will mean that the earnings per share even in good times will not appear spectacular.

The action on the part of the corporation in this matter is in accord with a fundamental trend in industrial finance. It reflects the revolutionary reversal of financial and investment sentiment in the last few years respecting bonds and equity stocks. Once it was accepted as axiomatic that bonds were safe investments while equity stocks were to be avoided as speculative.

Since the beginning of this century, however, the course of events have compelled a revision in this viewpoint. The tremendous expansion of American industry has resulted in multiplying intrinsic values behind equities stocks in innumerable successful companies. Meanwhile, the rise in prices and living costs have cut in half the purchasing power value of the "safe" incomes from bonds. Consequently, there has been an extraordinary movement of investment funds into stocks. This has come at a time when the nation is becoming investment-minded. Great industrial companies like the United States Steel Corp. are finding it to their advantage to meet the demand for common stocks and to retire the less favored bonds.

Western Plate Use Nears Record

AN IMPORTANT feature of finished steel production in the West has been the steadily growing tonnage of plates on mill books. The use of steel plates, as of bars, has been expanding in diversified lines, and this growing consumption has been of significance in the leadership of the western steel markets at this season. Illustrative of the increased consumption of plates is the boiler and heating plant industry in the West, which now measures its activities in uniform year-around consumption, made possible to a large extent by intelligent surveys of building and general economic trends.

It appears that the end of the first quarter may see a new record established in plate production for Chicago district producers. Plate mills that have not been in operation since the armistice have been pressed into service. Sales of plates for oil storage have increased about 50 per cent in the past three years for mills in the Chicago district. The movement to regulate overproduction of oil in the Southwest and the West may prove to be a deterrent factor in storage tank work projected for this year, but apparently broadening uses in other lines, including heavier car building programs, may replace tonnage temporarily quiescent in the oil country.

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Applying Electric Welding to Fabrication of Structural Steel and Ornamental Iron. Page 641.

AS REPORTED recently in IRON TRADE REVIEW'S special cablegrams from London, European iron and steel comptoirs are meeting to take action on prices and production. It is particularly appropriate that this publication's European manager should summarize for readers the names, purposes, and organization of the important associations. His article begins on page 646. Members of the European steel entente are meeting in Brussels to act on German manufacturers' plea for a larger production quota. Staff correspondents for IRON TRADE REVIEW cover European market news promptly and accurately.

The Readers' Page

CONTENTS

For March 7, 1929

SPECIAL ARTICLES

Fabricating Structural Steel and Iron by Welding—By Paul B. Covey..... 641

By-Product Ovens Underfired with Blast Furnace Gas..... 644

Ententes and Syndicates Sell Most European Steel—By Vincent Delport... 646

Metallography Simplified for Use in Shop—Chap. X (continued)—By E. Preuss..... 647

Dill Bill Would Affect Tool Builders... 650

Production Downturn Seen for April... 654

Editorial..... 655

BUSINESS TREND

Firm Price Levels Reassuring—By John W. Hill..... 658

Steel Price Index... 658
Foundry Pig Iron... 659
Iron and Steel Price Parity..... 659
Steel Castings..... 660
Railroad Traffic.... 660
Building Costs..... 661
Industrial Production..... 661

MARKET REPORTS

Review of Markets..... 662

Iron, Steel Prices 662, 663, 664, 667, 677, 689

Pig Iron..... 665
Coke..... 666
Ferroalloys..... 666
Iron and Steel Scrap 667
Semifinished..... 668
Bars..... 669
Plates..... 669
Pipe..... 670
Sheets..... 671
Tin Plate..... 671
Iron Ore..... 671
Structural Shapes.. 672
Reinforcing Bars... 673
Nuts, Bolts, Rivets.. 674
Railroad Equipment 674
Fluorspar..... 675
Cold Finished Steel. 675
Wire and Nails..... 675
Strip Steel..... 675
Nonferrous Metals.. 676
Coke By-Products.. 676
Warehouse Markets. 677
Pacific Coast Markets..... 678
Foreign Markets.... 691
Machinery Markets. 691
Crane Inquiry and Awards..... 691

GENERAL NEWS

February Iron Rate Second Best..... 680
Tariff Revision in Committees' Hands.. 681
New Cruisers Will Require 6000 Tons of Steel Each..... 681
January Exports Near Record..... 682
Industrial Men in the Day's News—Robert P. Lamont..... 684
Cars Recently Bought Will Require 775,000 Tons of Steel..... 690

Men of the Industry 685
Obituary..... 687
Here and There in Industry..... 689
Construction and Enterprise..... 693
New Incorporations 697
Trade Publications. 697

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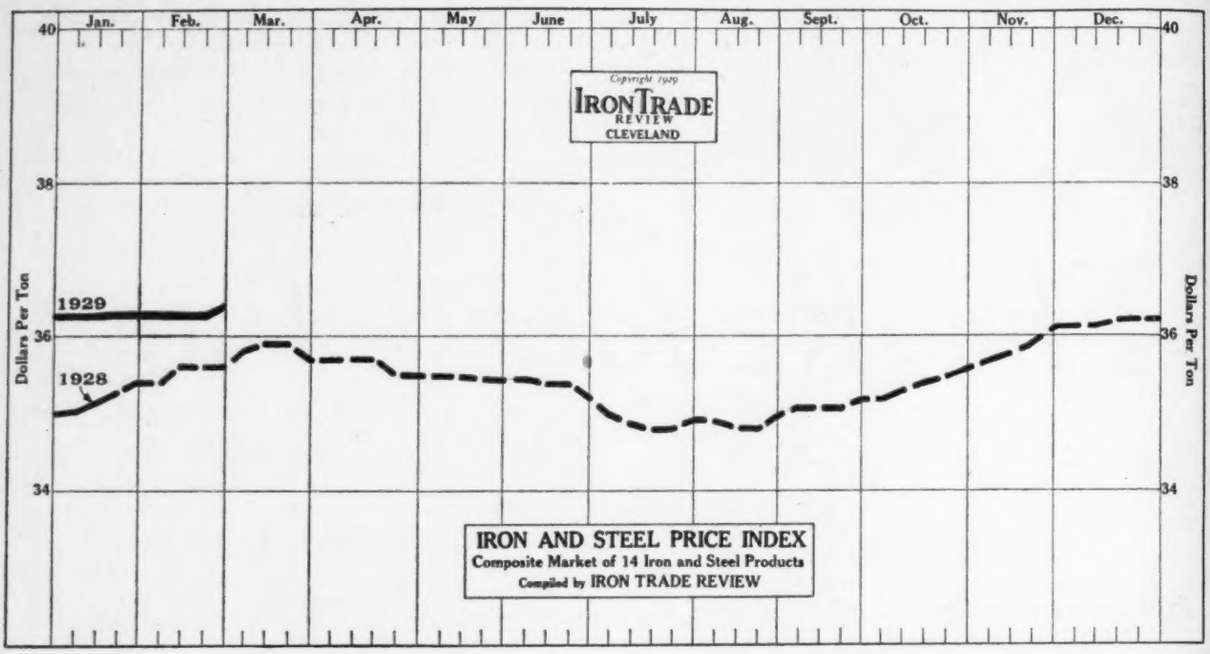
The Business Trend



Firm Price Levels Reassuring

By JOHN W. HILL, Financial Editor

THE iron and steel industry has made good the promise of the closing months of 1928. Not only has production climbed to high levels, but of even greater significance prices are maintaining a firm undertone, with advances for some products, IRON TRADE REVIEW'S composite market average in the last week of February stood at $36.37 a ton, a gain of 12 cents in a week.

THE advance was the first of any consequence in the composite since the beginning of the year. The fact that price averages held steady during the first weeks of record-breaking outputs demonstrated the underlying strength of the situation. Some advances seemed probable and these have now come. Whether all will be held or not remains to be seen.

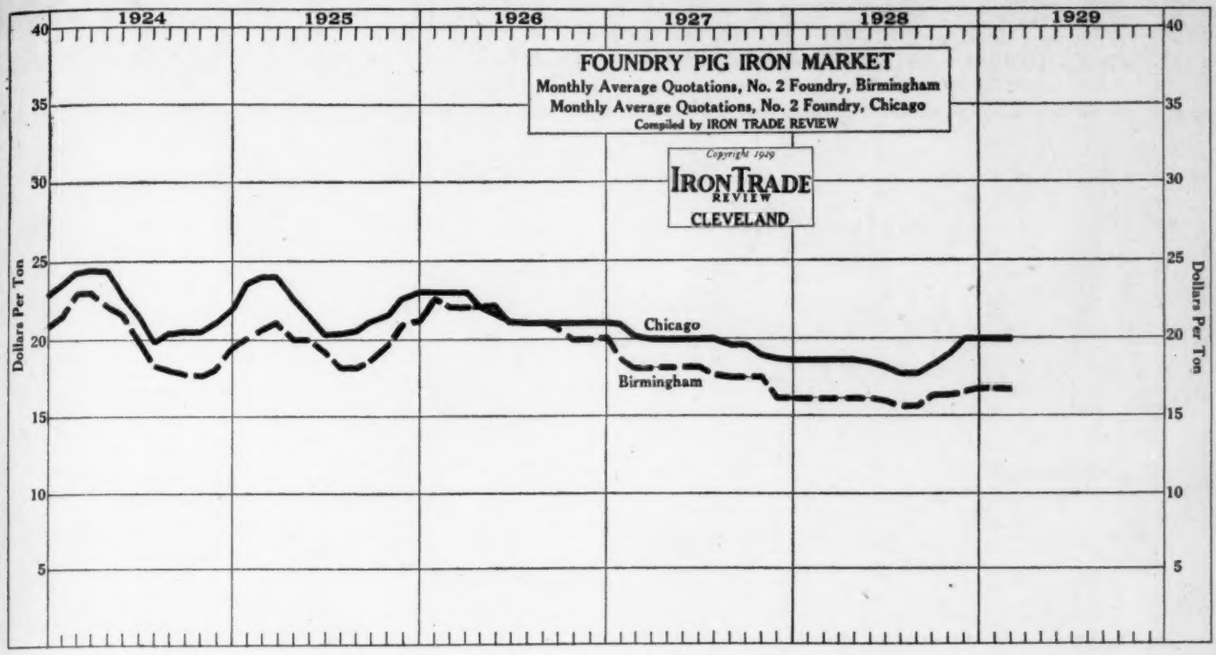
STRENGTH seems most pronounced in semi-finished steel, where the supply is none too abundant. In fact, something in the nature of a shortage exists for this material and the $1 a ton advance for it may not be the last. Talk of premiums on deliveries actually has been heard. Delivery dates for full finished sheets and strips also are being extended.

ALL this provides unmistakable evidence of the vigor of general industry. Moreover, business is now at the threshhold of the unfolding of spring activities, which will spell expansion of building, roadwork, farm repairs and many other activities. The iron and steel industry as well as other basic lines have the assurance now of a favorable first half.

NO OBSTACLES appear in the path immediately, although rapid price advances for copper and the continued existence of high money rates will bear watching. Industry in recent years has avoided price inflation, allowing Wall Street and Florida to indulge in this dangerous practice. If commodity price inflation and its attendant evils of overproduction and overbuying continue to be avoided, business is on solid ground.

EXCEPT in a few cases there is no inflation. The moderate advances for iron and steel represent merely some recovery from a deep and prolonged depression. With American industry geared up to mass production there is every reason to discourage any skyrocketing of values which would limit consumption.

The Business Trend

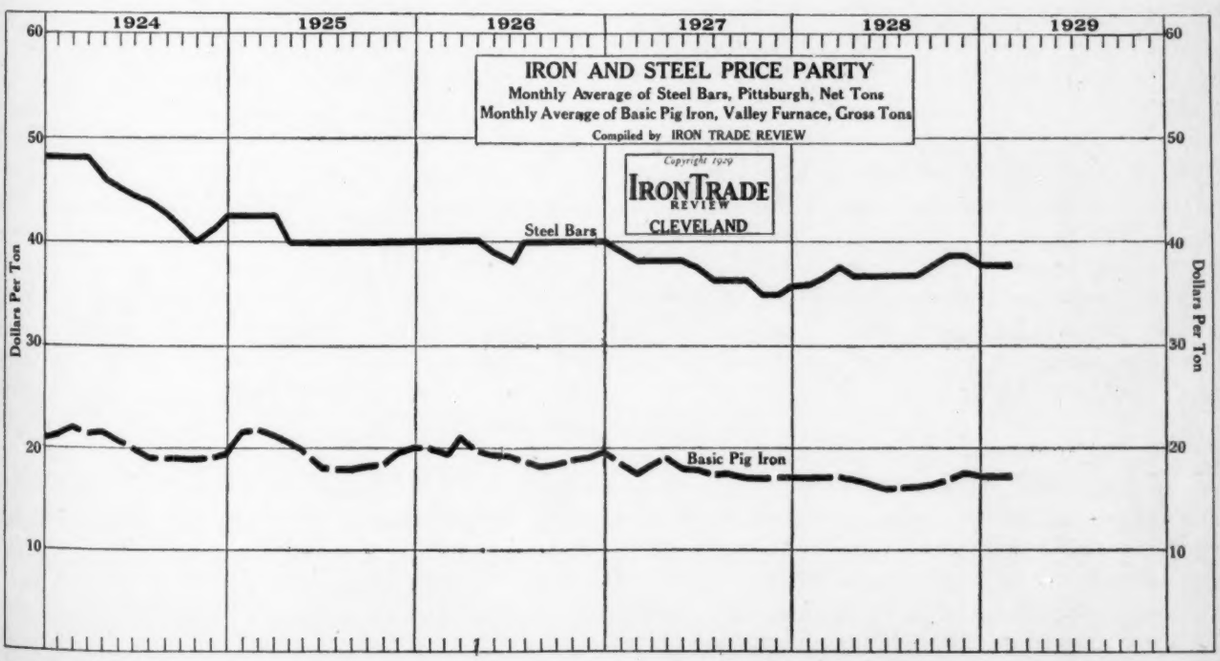


Foundry Pig Iron

QUOTATIONS of both northern and southern foundry pig iron have remained unchanged since the beginning of the present year. Both products, however, are substantially higher than they were one year ago. Standing at $20 a ton foundry, No. 2 Chicago iron compares with $20 in January and with $18.50 in February, 1928. The average for foundry No. 2 Birmingham in February was $16.50 compared with $16.50 a ton in January and $16 one year before. Demand is on a large scale for both grades of iron.

Iron and Steel Price Parity

THE spread between finished steel and basic pig iron in February showed no change from that of the previous month. The average of steel bars at Pittsburgh during the month was $38 a ton, while the average of basic valley pig iron during the same period was $17.50 a ton. This was a spread of $21.50 a ton, exactly the same as prevailed during January. In February, 1928, the price of steel bars was $37 a ton and basic valley pig iron was $17 a ton, making a spread of $20 a ton.



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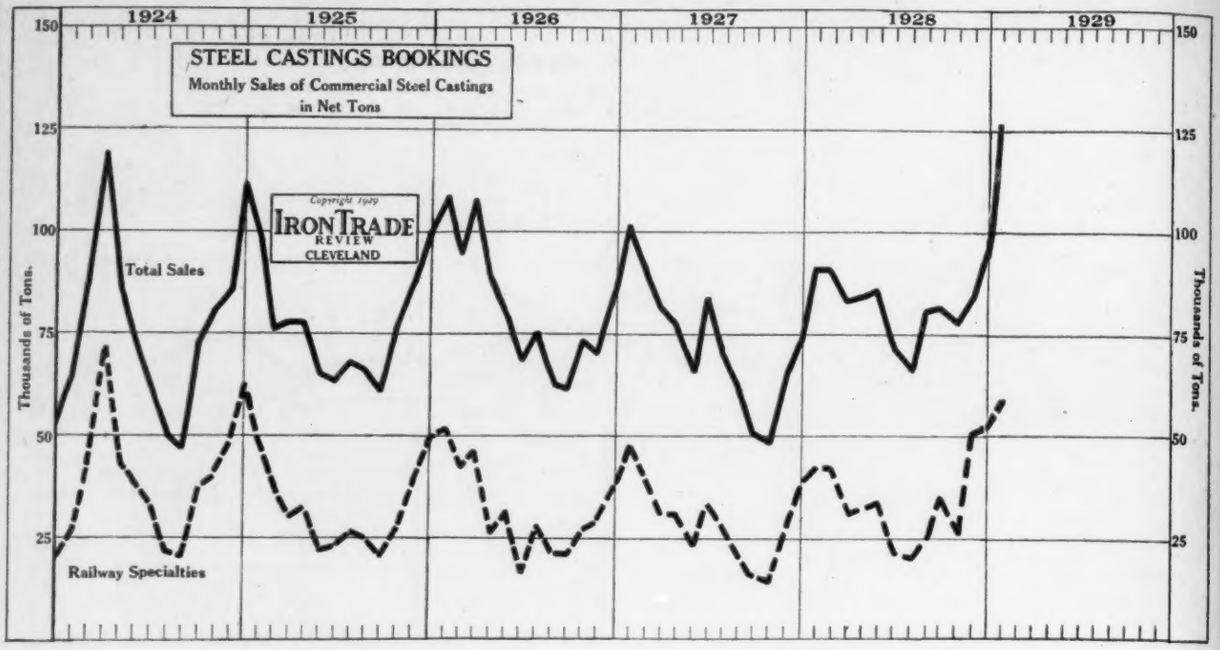
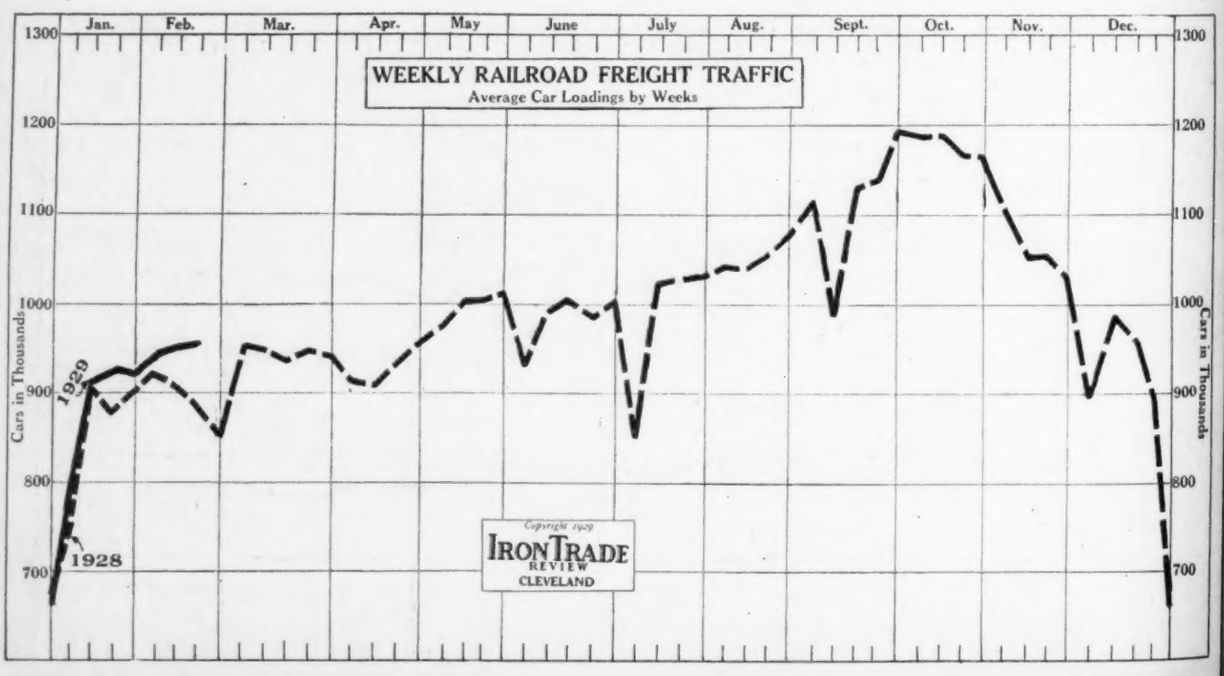


Steel Castings

NEW orders for commercial steel castings in January were at the best rate of any month since March, 1924. Total bookings amounted to 125,800 tons, compared with 96,373 tons in December and 91,448 tons in January, 1928. Bookings of railway speciality castings amounted to 66,293 tons, compared with 43,928 tons in December and 41,276 tons in January, 1928. January production totaled 93,410 tons, compared with 82,203 tons in December and 74,450 tons in January, 1928.

Railroad Traffic

CARLOADINGS for the week ended Feb. 16 were 958,051 cars, according to the American Railway association. This was a gain of 69,465 cars compared with the corresponding week of 1928. The increase was the largest registered for any week this year over the corresponding period of one year ago. Loadings of revenue freight declined during the last half of February, 1928. In contrast to that trend the present period is showing steady gain, largely because of higher coal production and active industry.



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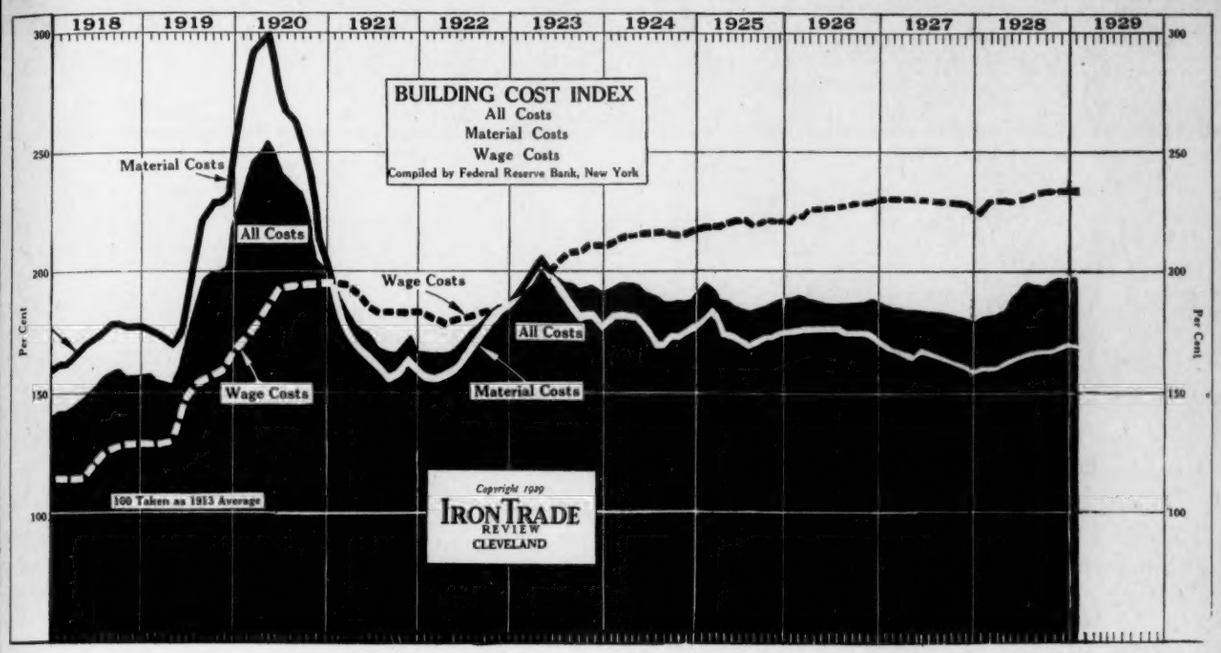
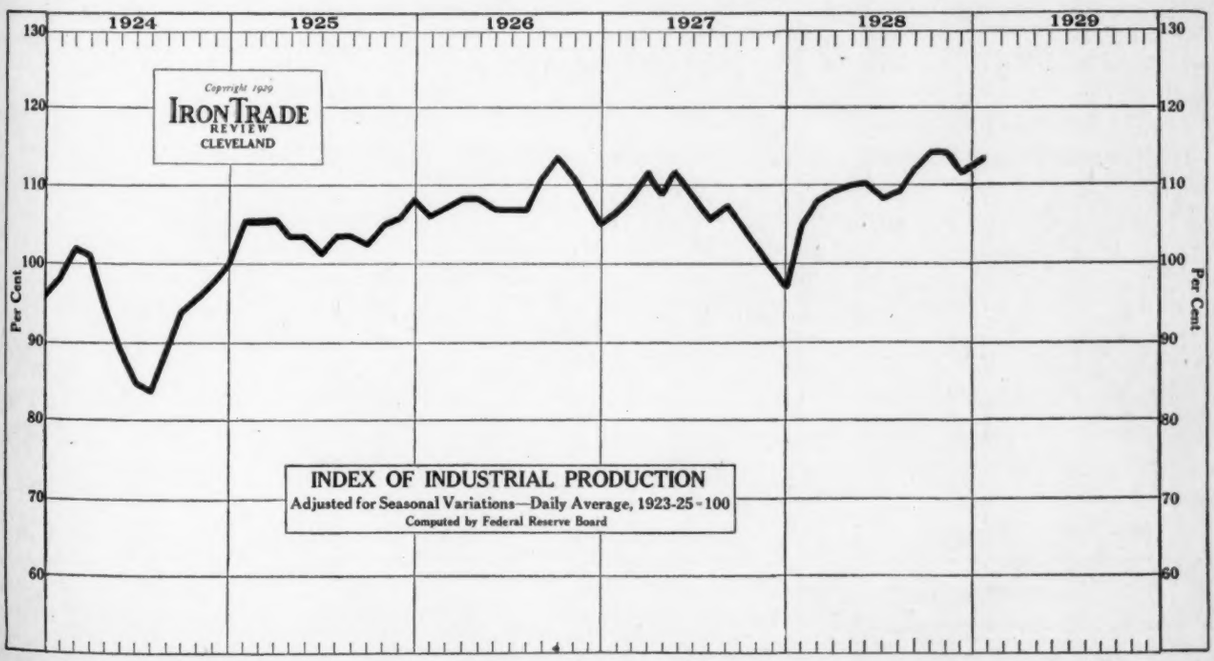


Building Costs

NO CHANGES of consequence occurred in the cost of construction in the first month of 1929. The index of building cost computed by the Federal Reserve bank of New York stood at 193 in January compared with 193 in the preceding month. The index is materially higher than it was one year ago, when it stood at 186. Wages of building labor stand at the index of 233, unchanged from December and compared with 229 one year before. The most marked gain is for material.

Industrial Production

INDUSTRIAL production expanded during January and continued on a higher plane than one year ago. Outputs of pig iron and steel ingots and automobiles established new records for the month. The high rate of steel activity reflected large purchases of material from automobile manufacturers and also increased demand from railroads and from many miscellaneous consumers. Textile mill activity also increased. As a result, the Federal Reserve board's industrial production index showed another advance.



Iron, Steel Output Records Falling

February Iron Rate a Monthly High—Work Extra Turns in Mills—Car Buying Brisk—Structural Lettings Rise—Ford Seeks Ore

BLAST furnaces in February made 114,833 gross tons of pig iron daily, a rate never equaled in any February and exceeded in all history only by the 115,207 tons of March, 1925. At the month's end 208 stacks were active, a net gain of six in February and ten since Dec. 31. Four of the stacks lighted last month were at steelworks, supporting the belief that February statistics on steel ingot production will disclose another record.

Mill Backlogs Have Lengthened

March appears at least to be carrying on this exceptional activity in some steel lines and to be bettering it in others. Specifications have been outrunning shipments with the result backlogs, especially in sheets, strip and bars, are heavier than a month ago. Save only that deferred deliveries compel buyers to specify farther ahead, requirements are not being anticipated. Market observers are convinced that substantially the current level of production is insured into May, when a turndown would be seasonal.

Contracting for finished steel for the second quarter continues in abeyance, for one reason because requirements now on mill books will carry many buyers well into that period, but the price situation is firm. Premiums are being offered in the East for prompt wire rods. With sheet bars up, makers of full finished sheets may advance. Heavy scrap purchases at Pittsburgh by Steel corporation subsidiaries and in the East by the Bethlehem Steel Co. indicate the termination of the dip in scrap prices and future extensive needs for this material.

Demand Becomes More Diversified

A trend toward diversification of demand is discernible this week. While the automotive industry continues the mainstay of the sheet market, carbuilders' needs have progressed to the highest point in several years. Plate demand, noteworthy because of railroad equipment support, has been augmented by inquiry for 30,000 tons for barge work at Pittsburgh. Structural steel takes its place this week with the other heavy finished lines with the award of 22,000 tons for the Carquinez Straits bridge at San

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	March 6, 1929	Feb., 1929	Dec., 1928	March 1928
PIG IRON				
Bessemer, del. Pittsburgh	$20.01	19.86	20.01	19.21
Basic, valley	17.50	17.50	17.50	17.00
Basic, eastern del., eastern Pa.	20.15	20.50	19.75	19.50
No. 2 foundry, del. Pittsburgh	19.26	19.26	19.76	19.01
No. 2 foundry, Chicago	20.00	20.00	20.00	18.50
*Southern No. 2, Birmingham	16.50	16.50	16.50	16.00
*Southern Ohio, No. 2 Ironton	18.50	18.50	18.50	19.00
**No. 2X, Virginia furnace	21.25	21.25	20.50	20.50
**No. 2X, eastern del. Phila.	22.01	22.01	22.01	21.26
Malleable, valley	18.00	18.00	18.00	17.25
Malleable, Chicago	20.00	20.00	20.00	18.50
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	18.76	18.76	18.76	18.51
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	104.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	3.00	2.90	2.75	2.60
Connellsville, foundry, ovens	3.75	3.75	3.75	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	35.00	34.25	34.00	33.75
Sheet bars, open-hearth, Pittsburgh	35.00	34.25	34.00	33.70
Billets, open-hearth, Pittsburgh	34.00	33.25	33.00	33.00
Wire rods, Pittsburgh	42.00	42.00	42.00	44.00

	March 6, 1929	Feb., 1929	Dec., 1928	March 1928
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.90	1.90	1.90	1.90
Steel bars, Chicago	2.05	2.00	2.00	2.00
Steel bars, Philadelphia	2.27	2.27	2.27	2.17
Iron bars, Chicago	2.00	2.05	2.00	2.00
Shapes, Pittsburgh	1.90	1.90	1.90	1.90
Shapes, Philadelphia	2.01	2.01	2.06	2.08
Shapes, Chicago	2.05	2.00	2.00	2.00
Tank plates, Pittsburgh	1.90	1.90	1.90	1.90
Tank plates, Philadelphia	2.15	2.10	2.10	2.10
Tank plates, Chicago	2.05	2.00	2.00	2.00
Sheets, black, No. 24, Pittsburgh	2.85	2.85	2.85	2.85
Sheets, blue anl., No. 10, Pittsburgh	2.10	2.10	2.10	2.10
Sheets, gal., No. 24, Pittsburgh	3.60	3.60	3.60	3.75
Sheets, black, No. 24, Chicago	3.00	3.00	3.00	3.05
Sheets, blue anl., No. 10, Chicago	2.25	2.25	2.25	2.25
Sheets, galvanized, No. 24, Chicago	3.75	3.75	3.75	3.90
*Plain wire, Pittsburgh	2.50	2.50	2.45	2.50
*Wire nails, Pittsburgh	2.65	2.65	2.60	2.65
Tin plate, per base box, Pittsburgh	5.35	5.35	5.35	5.25
*To large jobbers				
SCRAP				
Heavy melting steel, Pittsburgh	18.50	18.60	17.60	14.75
Heavy melting steel, eastern Pa.	16.00	16.30	15.35	13.75
Heavy melting steel, Chicago	15.50	16.00	14.50	12.75
No. 1 wrought, eastern Pa.	16.25	16.25	15.50	15.25
No. 1 wrought, Chicago	15.75	15.75	14.50	12.45
Rails for rolling, Chicago	17.50	17.50	16.50	14.45

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

STEEL PLATES

Pittsburgh, base	1.90c to 1.95c
Philadelphia, del.	2.10c to 2.25c
New York, del.	2.175c to 2.325c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.09c to 2.14c
Lackawanna, N. Y., base	2.00c to 2.10c
Birmingham, base	2.10c to 2.20c
Coatesville, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.20c to 2.25c
St. Louis, del.	2.22c

STRUCTURAL SHAPES

Pittsburgh, base	1.90c to 1.95c
Philadelphia, del.	2.00c to 2.10c
New York, del.	2.145c to 2.195c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.09c to 2.14c
Lackawanna, N. Y.	2.00c to 2.10c
Birmingham, base	2.10c to 2.20c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c

BARS

SOFT STEEL

Pittsburgh, base	1.90c to 1.95c
Chicago, base	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Lackawanna, N. Y., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Cleveland, base, local mills	1.90c to 1.95c
Cleveland, del., outside mills	1.95c to 2.00c
Philadelphia, del.	2.22c to 2.37c
New York, delivered	2.24c to 2.39c
Boston, delivered	2.265c to 2.415c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.95c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	2.00c to 2.10c
New York, delivered	2.19c to 2.24c
Philadelphia, delivered	2.17c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet, cut lengths	2.25c
Stock lengths from mill	2.00c
Chicago, billet	2.35c to 2.60c
Chicago, rail steel	2.05c
Chicago, rail steel, road and bridge work	1.95c to 2.05c
Philadelphia, cut lengths	2.75c

COLD FINISHED STEEL

Cold finished steel bars drawn or rolled, Pitts., Chi., cl.	2.20c to 2.30c
Do, del. Detroit	2.475c to 2.575c
Shafting (turned, polished) Pittsburgh	2.20c to 2.30c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.65c to 3.10c
Cold finished steel bars, Cleve.	2.25c to 2.35c

TIN AND TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.35

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24.. 4.00c to 4.10c

*Price subject to quantity differentials.

SHEETS

SHEET MILL BLACK

No. 24, Pittsburgh, base	2.85c to 2.95c
No. 24, Philadelphia, delivered	3.17c to 3.27c
No. 24, Gary, Indiana Harbor	2.95c to 3.05c
No. 24, Chicago, delivered	3.00c to 3.10c
No. 24, Birmingham, base	3.10c
No. 24, St. Louis, del.	3.27c

TIN MILL BLACK

No. 28, Pittsburgh, base	3.00c
No. 28, Gary, base	3.10c

GALVANIZED

No. 24, Pittsburgh, base	3.60c to 3.70c
No. 24, Philadelphia, delivered	3.92c to 4.02c
No. 24, Gary, Indiana Harbor	3.70c to 3.80c
No. 24, Chicago, delivered	3.75c to 3.85c
No. 24, Birmingham, base	3.85c
No. 24, St. Louis del.	3.92c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.10c to 2.20c
No. 10, Philadelphia, delivered	2.42c to 2.52c
No. 10, Gary, Indiana Harbor	2.20c to 2.30c
No. 10, Chicago, delivered	2.25c to 2.35c
No. 10, Birmingham, base	2.35c
No. 10, St. Louis, del.	2.42c

AUTOMOBILE

No. 20, Pittsburgh, base	4.10c
No. 20, delivered Detroit	4.39c

FURNITURE

No. 24, Grade A, Pittsburgh	4.00c to 4.10c
No. 24, Grade B, Pittsburgh	3.80c to 3.90c

(Turn to the following page)

Francisco, 10,000 tons for a Philadelphia office building, and numberous lettings 1000 to 3000 tons.

Production of steel in general is limited only by mechanical handicaps or a shortage of semi-finished material. Extra turns are being worked in the Mahoning valley, where 49 out of 51 independent open-hearth furnaces are on. Chicago mills, averaging over 95 per cent, are rationing semifinished steel for the heavier and more important products. Pittsburgh district mills are doing about 90 per cent. At Buffalo 32 out of 37 open hearths are lighted. Steel corporation subsidiaries made the biggest gain of the year when their operating rates shot up 4 points this week to 95 per cent. Independents average about 90 per cent and the entire industry 92 to 93 per cent.

Car Orders Nearly Equal All of 1928

A preliminary estimate places February car awards at 16,471, which, added to the 12,196 placed in January, reveals the past 60 days as the best car-buying period since late 1924. March opens with undiminished vigor with 4150 ordered by the Chicago, Milwaukee, St. Paul & Pacific, 1500 by the Texas & Pacific and 1020 by the Missouri Pacific. The 1000 distributed by the Maine Central fall in the February total. About 8500 cars are on inquiry, including 4371 for the New York Central. The Norfolk & Western has awarded the rebuilding of 1000 hopper bodies. Thirty-six locomotives were contracted for this week. Ford Motor Co., as usual, is first with its inquiry for Lake Superior iron ore. This year it asks prices on 360,000 tons, compared with a purchase of 450,000 tons for the 1928 season, but its initial inquiry is not a true index to its requirements.

The recent promise of a pig iron buying movement has not been fulfilled, but quiet coverage has accounted for a large proportion of second quarter tonnage. Some large melters not yet protected are now negotiating. More iron was shipped by furnaces in February than in January despite the shorter month, and a further increase in March is indicated

Pig Iron 4 Per Cent Above January

February's daily pig iron production rate of 114,833 tons compares with 110,736 tons in January, 99,954 tons in February, 1928, and 114,788 tons in February, 1925, the previous February record. February's rate indicates an annual output of 41,914,045 tons, surpassing the record of 40,025,850 tons in 1923.

General improvement in the British iron and steel markets is indicated by the IRON TRADE REVIEW weekly cable from London. Shipyards especially are taking larger tonnages of steel. An advance in prices of heavy steel in Britain is impending. Domestic iron and steel business on the Continent is quieter but exports are improving.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets Tin Plate, Wire Nails and Black Pipe

This week (March 6, 1929)	$36.37
Last week (Feb. 27, 1929)	36.37
One month ago (February, 1929)	36.28
Three months ago (December, 1928)	36.22
One year ago (March, 1928)	35.81
Ten years ago (March, 1919)	52.28
Fifteen years ago (March, 1914)	23.60

Following its bulge of 12 cents last week, the IRON TRADE REVIEW composite of fourteen leading iron and steel products is unchanged this week at $36.37, its highest point in 18 months. A year ago it stood at $35.81.

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED
SEE ALSO PRECEDING PAGE

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts..... 2.00c
Hot strip 6 1/16 to 24-in., Pitts. 1.90c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut length, 1.90c plate basis, or 2.10c blue annealed basis.
Hot strip, bands 6 in. and under, Chicago ..... 2.20c to 2.30c
Do, 6 1/16 to 24 in. ..... 2.10c to 2.20c
Cooperage stock 2.20c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 ton and over)..... 2.75c to 2.85c
Worcester, Mass. (3 tons and over) ..... 3.10c to 3.20c

ALLOY STEEL

Hot Rolled

F.o.b. Mills

Alloy Quality Bar Base is 2.60c to 2.75c

S.A.E. Series Number	Alloy differential	Net, 100 lb. bars
2000	0.25	$3.00
2100	0.55	3.30
2300	1.50	4.25
2500	2.25	5.00
3100	0.55	3.30
3200	1.35	4.10
3300	3.80	6.55
3400	3.20	5.95
4100 0.15-0.25 Mo.	0.50	3.25
4100 0.25-0.40 Mo.	0.70	3.45
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.80
5100 0.60-0.90 Cr.	0.35	3.10
5100 0.80-1.10 Cr.	0.45	3.20
5100 Chrome Spring	0.20	2.95
6100 Bars	1.20	3.95
6100 Spring Steel	0.95	3.70
Chrome Nickel Vanadium	1.50	4.25
Carbon Vanadium	0.95	3.70
9250 (flats)	0.25	3.00
9250 (rounds squares)	0.50	3.25

TUBING

Boiler

Carload Discounts—F.o.b. Pittsburgh Mills

Steel (lapweld) 3¼ to 3¾-inch 56
Charcoal iron, 3¼ to 3½-inch 18
Seamless hot rolled 3¼ to 3½-inch.... 56

Lapwelded steel takes two supplementary 5 per cents for carload lots; charcoal, 10 per cent; seamless, 5 per cent.

Note: Discounts for additional sizes and l.c.l. shipments given on last editorial page.

COLD DRAWN SEAMLESS

F.o.b. mill in desirable quantities

Random lengths, over 5 feet..... 55 per cent
Selected lengths, 1 to 18 feet..... 53 per cent

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland, Ironton base

(Per pound)	Dealer trade	Large jobbers
Bright plain wire, 6 to 9 gage	2.60c	2.50c
Annealed field wire	2.75c	2.65c
Galvanized wire	3.20c	3.10c
Barbed wire, galvanized	3.40c	3.30c
(Per 100-pound keg)		
Wire nails	$2.75	$2.65
Galvanized nails	4.75	4.65
Polished staples	3.20	3.10
Galvanized staples	3.45	3.35
Cement coated nails	2.75	2.65
Manuf. wire, del. Detroit		2.735c
Wire nails, del. Detroit		$2.90

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland-Ironton base on products made there; Duluth $2 higher; Worcester, Mass., Fairfield, Ala., $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

Anderson, Ind., $1 higher, Chicago $2 higher, Duluth, Birmingham $3 higher.

CUT NAILS, CHAIN PILING

Cut nails c.l., f.o.b. mills 2.75c
Cut nails, l.c.l. f.o.b. mills.... 2.85c
Chain, 1-in., proof coil, Pitts.... 6.00c
Sheet piling, base, Pittsburgh.. 2.25c

CAST IRON WATER PIPE

Prices per net ton
Class B pipe

Six-inch and over, Birming'm $37.00 to 38.00
Four-inch, Birmingham ..... 41.00 to 42.00
Four-inch, Chicago ..... 49.20 to 50.20
Six-inch to 24-inch, Chicago.... 45.20 to 46.20
Four-inch, New York ..... 42.80 to 44.80
Six-inch and over, New York.... 39.80 to 41.80
Standard fittings, Bir. base.. $100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20 gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

IRON AND STEEL PIPE

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel*	62	50½
1 and 1¼-inch butt iron**	31	15

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del. 2½ points less.

*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent; on galvanized by 1½ points with a supplementary 5 per cent.

**Large jobbers obtain additional discount of 1 point with supplementary discounts of 5 and 2½ per cent on black and galvanized. For add. sizes see last editorial page.

RAILS, TRACK MATERIAL

Standard bessemer rails, mill $43.00
Standard open-h'th rails, mill $43.00
Relaying rails, St. Louis .....$24.00 to 31.00
Relay rails, Pitts.. 60 to 90 lb....$22.00 to 27.00
Light rails, 25 to 45, mill..... $36.00
Angle bars, Chicago base 2.75c
Spikes, railroad, Pittsburgh..... 2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts..... 2.80c
Spikes, boat and barge, Pitts. 3.00c
Spikes, railroad, Chicago 2.80c
Track bolts, Pitts., steam roads 3.80c
Track bolts, Pitts., stand, jobbers ..... 70 off list
Track bolts, Chicago 3.80c
Tie plates, Chicago, Pitts..... $43.00

BOLTS AND NUTS

Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread ..... 60 to 70 off
Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.
Eagle list ..... 60 to 70 off

MACHINE BOLTS

All sizes, cut thread ..... 60 to 70 off
Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.
Lag screws ..... 60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads.... 60 to 70 off
Tap bolts ..... 60 to 70 off
Blank bolts ..... 60 to 70 off
Stud bolts without nuts ..... 60 to 70 off
Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.
Tire bolts .....60-5 off

Nuts

Semifinished ..... 60 to 70 off

HEXAGON CAP SCREWS

Milled .....80-10-5 off
Upset 1 in. diam. and smaller .....85 off

SQUARE HEAD SET SCREWS

Milled .....80-5 off
Upset 1 in. diam. and smaller .....80-10-5 off

RIVETS

Struc. c.l., Pitts-Cleve..... 2.90c to 3.10c
Structural, c.l. Chicago ..... 3.00c to 3.20c
**7/16-inch and smaller, Pitts....70 and 10 off
Chi., Cleve. ..... 70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

WASHERS

Wrought, c.l., Pitts. dist.....$6.50 to 6.75 off
Wrought, c.l., Chicago dist.....$6.70 to 6.90 off
Lock: to dealers .....85-5 off
Lock: to consumers .....85 off

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth $34.00
Pittsburgh, bessemer 34.00
Youngstown 34.00
Cleveland 34.00
Philadelphia ..... 38.30 to 39.30
Chicago 35.00
Forging, Chicago 40.00
Forging, Pittsburgh ..... 38.00 to 39.00
Forging, Philadelphia ..... 43.30 to 44.30

SHEET BARS

Pittsburgh $35.00
Youngstown 35.00
Cleveland 35.00
Chicago 35.00

SLABS

Pitts., Young., and Cleve..... $34.00

WIRE RODS

Pittsburgh, Cleveland $42.00
Chicago 43.00

SKELP

All grades, Pittsburgh ..... 1.90c to 1.95c

IRON ORE

LAKE SUPERIOR ORE
Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%..... $4.55
Mesabi bessemer, 51½% 4.40
Old range nonbessemer, 51½% 4.25
Mesabi nonbessemer, 51½% 4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%..... 8.00
Copper free low phosphorus 58 to 65 per cent ..... nominal

FOREIGN ORE

Cents per unit, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese 10.50 to 11.00
North African low phosphorus 11.50 to 11.75
Swedish foundry or basic, 65% 9.00 to 10.00
Spanish and North African basic, 50 to 60 per cent..... 10.00 to 11.00
Newfoundland foundry, 55%.... 8.50 to 9.00
Tungsten spot and early fut., short ton unit, duty paid.....$11.75 to 11.95

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian ..... 35 cents
Indian ..... 35 to 36 cents
Caucasian, (53-55 per cent) .... 36 to 38 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton..... $18.00
Washed gravel, imported duty paid east. tide., gross ton.....$19.90 to 20.40

REFRACTORIES

FIRE CLAY BRICK
Per 1000 f.o.b. works

First Quality

Pennsylvania .....$43.00 to 46.00
Ohio ..... 43.00 to 46.00
Illinois ..... 43.00 to 46.00
Kentucky ..... 43.00 to 46.00
Missouri ..... 43.00 to 46.00
Maryland ..... 43.00 to 46.00
Georgia and Alabama ..... 40.00 to 45.00

Second Quality

Pennsylvania ..... 35.00 to 38.00
Ohio ..... 35.00 to 38.00
Illinois ..... 35.00 to 38.00
Kentucky ..... 35.00 to 38.00
Missouri ..... 35.00 to 38.00
Maryland ..... 35.00 to 38.00
Georgia and Alabama ..... 30.00 to 35.00

SILICA BRICK

Pennsylvania 43.00
Joliet, Ill., East Chicago, Ind... 52.00
Birmingham ..... 50.00 to 51.00

MAGNESITE BRICK
Per Net Ton

9 x 4½ x 2½ 65.00

MAGNESITE
Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite.... 40.00

CHROME BRICK
Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½ 45.00

Pig Iron

Market More Active—Bulk of Second Quarter Requirements Closed in Some Districts —Substantial Basic Sales

INQUIRIES for pig iron and sales for second quarter are increasing, but business has been well distributed in recent weeks and leading producers do not expect a heavy buying movement. The bulk of requirements have been closed in some districts, notably at Chicago. Several of the largest consumers, including Standard Sanitary Mfg. Co., now are in the market, while others have recently placed their orders. The total of February shipments are reported ahead of January despite the fewer number of days. The March average is expected to be the largest of the winter months. Lower lakes steelworks furnaces are preparing to push sales in the Chicago district this year. Substantial sales of basic iron have been booked at $17.50. Prices in general are steady.

PITTSBURGH, March 5.—February pig iron shipments were large for practically all producers, and in most instances higher than those of January, despite the fewer number of days. Shipments were ahead of production for some companies. The Standard Sanitary Mfg. Co. is inquiring for an unstated tonnage of No. 2 and No. 2X iron for second quarter, for delivery to Pittsburgh and New Brighton, Pa., plants. Inquiry generally is not brisk, although a steady volume of small-lot business is being placed. Some talk is heard of higher prices in the near future, but no strengthening is noted in recent sales. Sellers are unable to obtain more than $17.50, base, valley, on small orders for No. 2 foundry iron. Several sales of basic confirm the price at $17.50, which has prevailed since Jan. 1. A local steelmaker purchased 4000 tons at this price, and an Ohio steelmaker placed a substantial tonnage at the same figure. Bessemer and malleable business is confined to small lots, at $18.25 and $18, respectively. The average sales price of bessemer iron in February was $18.25, and of basic $17.50, according to W. P. Snyder & Co. These are the same averages that applied in January and December.

New York, March 5.—Sales of pig iron increased in the past week to 15,000 tons. Worthington Pump & Machinery Corp. closed for about 4000 tons for four plants. General Electric Co. has not yet acted on its recent inquiry for second quarter. New inquiries are small. The range on Buffalo foundry iron for this territory is $17 to $17.50, base, Buffalo, while in some instances lower equivalent delivered prices have been made.

Buffalo, March 5.—Pig iron purchases are smaller following heavy orders in February. One Buffalo producer estimates February sales at 40,000 tons, another at more than 25,000, and others in proportion to the capacity they have to offer. The New York Air Brake Co. bought 1500 tons and the Worthington Pump & Machinery Corp. a like amount. The General Electric Co. and the Massey-Harris Co. inquiries are not reported covered. Withdrawal of former eastern prices under $18, Buffalo, for foundry and $18.50 for malleable is said to be general. Buffalo district prices are 50 cents higher.

Cleveland, March 5.—Pig iron sales have been well distributed from week to week, and have held up in substantial volume; therefore, sellers are not disturbed by the absence of a heavy buying movement at this time. More interest is shown by melters in requirements for second quarter, and during the week inquiries for 2000 and 3000-ton lots came from melters in Erie, Pa., Dayton, O., and Kokomo, Ind. Including an inquiry from General Electric Co. for 1800 tons for its Erie plant, the total received here in the last few days amounted to about 15,000 tons. Sales by furnace interests with headquarters here during the week totaled 45,200 tons, compared with 33,300 tons the first week preceding and 53,000 tons the second week. Shipments in February made up a larger total than for January, despite the shorter month. Opinion among some sellers is that March will show the highest total of shipments of any of the winter months. Prices are steady at $19, base, Cleveland furnace, for local delivery, and $18.50, base, for outside delivery. Other lake furnace prices are unchanged.

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$18.25
Bessemer, del. Pittsburgh	20.01
Basic, valley furnace	17.50
Basic, del. Pittsburgh	19.26
Basic, Buffalo furnace	17.50
Basic, del. eastern Pa.	20.15 to 20.76
Malleable, valley furnace	18.00
Malleable, del. Pittsburgh	18.76
Malleable, Cleve. furn. for local del.	19.00
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	19.00
Malleable, del. eastern Pa.	21.76 to 22.26
Malleable, Granite City fur.	20.50
No. 1 foundry, Chicago furnace	20.50
No. 1X, eastern del., Phila.	22.26 to 22.76
No. 1X, Buffalo furnace	20.00
No. 2 foundry, del. Pittsburgh	19.26
No. 2 foundry, valley furnace	17.50
No. 2 plain, Buffalo furnace	18.50
No. 2 foundry, Chicago furnace	20.00
No. 2 foundry, Granite City	20.00
No. 2 foundry, Ironton furnace	18.50
No. 2 fdy. Cleve. furn. for local del.	19.00
No. 2 plain, del., Phila.	21.26 to 21.76
No. 2 plain, Virginia furnace	20.75
No. 2 plain, Buffalo, del. Boston	22.41 to 22.91
No. 2 plain, N. J., tidewater	20.28 to 21.28
No. 2 Alabama, Birmingham	16.50
No. 2 Alabama, del. Cincinnati	20.19 to 20.69
No. 2 Tenn., Birmingham base	16.50
No. 2 Tenn., del. Cincinnati	20.19
No. 2 Alabama, del. Chicago	22.51 to 23.01
No. 2 Alabama, del. Cleveland	22.76 to 23.26
No. 2 Alabama, del. St. Louis	21.42
No. 2X, east, N. J., tidewater	20.78 to 21.78
No. 2X, eastern, del. Phila.	21.76 to 22.26
No. 2X, foundry, Buffalo furnace	19.00
No. 2X, Buffalo, del. Boston	22.91 to 23.41
No. 2X, Virginia furnace	21.25
Gray forge, val., del. Pittsburgh	18.76 to 19.26
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.26 to 24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Superior, del., Chicago	27.04

CANADIAN PRICES

No. 2 foundry, del. Toronto	23.60
No. 2 foundry, del. Montreal	25.00 to 25.50
Malleable, del. Toronto	23.60
Malleable, del. Montreal	25.00 to 25.50
Basic, del. Montreal	24.00 to 24.50

Silvery iron, Jackson county, O., furnaces, in per cents: 5—$23 to $24; 7—$25 to $26; 8—$26 to $27; 9—$27 to $28; 10—$29 to $30; 11 $31 to $32; 12—$33 to $34; 13—$35 to $36.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$31 to $32, 11—$33 to $34; 12—$35 to $36; 13—$37 to $38; 15—$41.50 to $42.50; 16—$43 to $44.

Chicago, March 5.—Furnace order books are nearly filled with the usual second quarter contract tonnage. Thus sellers' position is strengthened on the $20 price for the base grades. Reported weakness in the valley price is having only a sentimental effect here, as competition from that source is met only in Indiana. The recent short selling in pig iron has tended to become negligible. No announcement has been made whether the price in this market may be advanced if iron ore prices become higher.

Some iron is being offered here on a basis of $19.75, Chicago, for shipment by vessel from eastern steelworks' lake furnaces. No sales are reported. It is understood a pig iron seller in this district will be the local sales agent for lower lake furnaces this season. March shipments from Chicago furnaces are holding to the February daily rate.

Cincinnati, March 5.—Pig iron inquiries for second quarter are brisk. One dealer sold 12,000 tons of northern iron to Indiana users for second quarter. A valley furnace sold 500 tons of malleable and 500 tons of foundry iron to Indiana users. Two inquiries for 1000 and 500 tons of northern iron, respectively, were issued by Indiana consumers. Three southern Ohio buyers are in the market for 3000, 500 and 500 tons, respectively. An increase of 50 cents in pig iron prices was announced by a valley furnace.

St. Louis, March 5.—While the melt of pig iron is increasing steadily and stocks are of moderate size, purchasing for second quarter has not developed the volume expected. Buying

(*Concluded on Page* 668)

Coke

Prompt Beehive Furnace Fuel Easier—Other Heating Grades Lower—Shipments Heavy

MILDER weather has led to a reduction of 10 to 15 cents in the price of beehive heating coke, and small, spot tonnages of the furnace grade also are easier, sales being made at $3, or 10 cents under the recent price. Contract prices, however, are reported firm. Some contracts for second quarter are being renewed at a higher figure than applied one year ago.

Pittsburgh, March 5.—Beehive furnace coke is a shade easier, for small, spot business, although the situation as regards large tonnage continues strong. Spot sales of a few carloads at a time generally bring no more than $3, compared with $3.10, obtainable on such business a short time ago. Surplus fuel still is lacking. However, on large tonnages for prompt shipment producers would quote a higher price. One valley steelworks that contracted for coke over February and March placed additional tonnage for March and April. Some contracts expiring April 1 are being renewed for second quarter at higher prices than a year ago. Large producers continue well engaged in shipping on contracts, and are not active in the spot market. Output of merchant ovens holds about 25 per cent above the rate of a year ago. Demand for heating coke has dwindled and prices have receded 10 to 15 cents. Foundry coke buying is steady at unchanged prices.

Production in the Connellsville district in the week ended Feb. 23 was 67,940 tons, against 66,380 tons in the week preceding.

New York, March 5.—Specifications against foundry coke contracts are brisk, and above the average rate for recent weeks. Prices on foundry coke are unchanged. High-grade Latrobe beehive foundry coke continues $4.85, ovens; Connellsville foundry coke $3.75 to $4, ovens; and by-product foundry coke $9 to $9.40, delivered Newark, N. J., and $11, delivered New England. The market on furnace coke continues to develop higher prices and now is $3 to $3.25, Connellsville.

Cincinnati, March 5.—Warmer weather has reduced domestic coke demand. Foundry requirements hold up. The situation at Detroit is easier, although shipments are going forward rapidly.

St. Louis, March 5.—February proved the best month experienced by coke producers in more than two years. Consumption at mills, foundries and machine shops is unusually large. Prices are firm.

Birmingham, Ala., March 5.—Improved conditions are noted in the coke market, due to increased consumption for manufacturing and domestic purposes. Prices are steady.

Coke Prices

	Prices per Net Ton	
Beehive Ovens		
Connellsville furnace	$3.00 to	3.10
Connellsville foundry	3.75 to	4.85
New River foundry	6.00 to	6.50
Wise county foundry	4.25 to	5.00
Wise county furnace	3.50 to	4.75
By-Product Foundry		
Newark, N. J., del.	9.00 to	9.40
Chicago, ovens		8.00
New England, del.		11.00
St. Louis, del.		9.00
Birmingham		5.00
Indianapolis, del.		10.03
Ashland, Ky.		8.00
Portsmouth, O.		8.00
Detroit ovens		9.00
Buffalo, ovens		8.75

Ferroalloys

Specifications Active—February Daily Average Ahead of January

Pittsburgh, March 5.—Specifications for ferroalloys continue at the active rate of a number of weeks. February business about equaled January, despite the shorter month, and the average rate for some material was slightly higher than in January. Spot buying is light. An occasional carload order for spiegeleisen is received for prompt shipment. On this business the current price is $34 for 19 to 21 per cent spiegeleisen. Ferromanganese continues $109.79, delivered, Pittsburgh.

New York, March 5.—Special ferroalloys are firm and unchanged throughout the list. Shipments are unusually large. Tungsten ores are strong, with holders not wanting to sell early futures, and users not wanting to buy distant positions. Prices are largely nominal, ranging from a little under $12, a short ton unit, duty paid, on wolframite, down to $11.60.

Struthers Case Is Heard

Washington, March 5.—Argument of the case in which H. W. Grant, receiver for the Struthers Furnace Co., is suing A. B. Leach & Co., New York investment brokers, for $300,000, is scheduled to be heard by the United States Supreme Court Wednesday. The $300,000 is alleged to be due the Struthers company from a stock and bond transaction. At a hearing before the late Judge D. C. Westenhaver in the federal district court in Cleveland, Mr. Grant was given full judgment. However, the circuit court of appeals reversed the decision, holding that a receiver appointed under state laws cannot bring a suit of this character. This point is to be argued before the Supreme Court Wednesday. If the court upholds Judge Westenhaver, the case likely will be sent back to the circuit court at Cincinnati for a decision on its merits.

Gray Iron Castings Total Above Normal

Statistics on production, new and unfilled orders, materials received and on hand and forecasts on the business outlook are revealed in the first monthly trade report for the gray iron foundry industry, which has just been issued by the Gray Iron institute, Cleveland, over the signature of Arthur J. Tuscany, manager. The figures for the month of January, 1929, follow:

	No. of foundries reporting	Short tons	Per cent of normal*
Normal production	77	18,695	100.0
Production, Jan., 1929	77	22,202	118.7
New orders rec'd, Jan.	43	12,905	128.5
Unfilled orders, Jan. 31	41	12,287	125.6
Materials rec'd, Jan.†	68	18,803	109.1
Mat'ls on hand, Jan. 31†	66	26,413	156.0

*Normal production is the average monthly production in 1926, 1927 and 1928. The percentages are in ratio to the total normal production for the number of foundries shown.
†All grades of pig iron and all grades of scrap.

In addition 71 foundries reported on the business outlook as follows: Good, 41; fair, 27; poor, 2, and bad, 1. The statistics will be continued and reported monthly.

Now Alan Wood Steel Co.

Philadelphia, March 5.—The Alan Wood Steel Co. is the new name of the Alan Wood Co., which recently took over the Alan Wood Iron & Steel Co. and the Rainey-Wood Coke Co. The business is being conducted in the name of the Alan Wood Steel Co., which is an operating as well as a holding company.

Ferroalloy Prices

(In dollars, except ferrochrome)

Ferromanganese, 78 to 82 per cent tidewater duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent domestic furnace spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.04 to 1.10
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload, producer's plant, net ton	160.00
Do, one ton to carload	170.00
Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Quantity diff. apply on 100 tons and over.
*These prices contract, spot $5 higher.

Scrap

Tonnage Buying by Large Users Gives Strength—Prices Change Little—Weather a Handicap

ELEMENTS of strength and weakness appear in the scrap market. Steel corporation subsidiaries and Bethlehem Steel Co. have been covering unusually large tonnages at prices close to the market. In spite of these sales the market has not risen. Weather has delayed gathering of railroad scrap.

Chicago, March 5.—Bearish influences are acting to depress certain grades of iron and steel scrap, but on the whole the market is marking time and holding its own. A steelworks consumer purchased several thousand tons of heavy melting steel at $16, or 25 cents under the recent level. Cast borings show further weakness, $11.75 being the top offer. Railroad offerings, due largely to winter weather, are much below normal. Chicago & North Western's list Saturday was less than 2500 tons. Yard production of scrap is delayed because of ice and snow. Weather conditions and continued high consumption offer a strengthening undertone. Price resistance is being offered in hydraulic compressed sheets and several other grades. Steel foundries are further behind on orders than in many months, and gray iron foundries find their orders growing.

Boston, March 5.—Scrap is somewhat firmer. Heavy melting steel is in better demand, with the price advancing. Steel axles also shows stronger trend, while prices, as a rule, were steady.

New York, March 5.—Following

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except Detroit where dealers' buying prices are shown

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	12.00 to 12.50
Boston, dealers	12.00 to 12.50
Boston, No. 2	10.00 to 10.50
Buffalo, No. 1	16.50 to 17.50
Buffalo, No. 2	14.25 to 14.75
Chicago	15.50 to 16.00
Cincinnati, deal.	13.75 to 14.25
Cleveland, No. 1..	15.75 to 16.00
Cleveland, No. 2..	15.25 to 15.75
Detroit, No. 1	14.00 to 14.25
Detroit, No. 2	12.00 to 12.25
East Pa., del. mill	16.00
Eastern Pa. No. 2	12.00 to 14.50
N. Y., deal., R. R.	12.50 to 13.00
N. Y., deal., yd.	8.50 to 9.50
Pittsburgh, No. 1..	18.25 to 18.50
Pittsburgh, No. 2..	16.50 to 17.00
St. Louis, No. 1	14.00 to 14.50
St. Louis, No. 2	13.00 to 13.50
Valleys, No. 1	17.50 to 18.00

COMPRESSED SHEETS

Buffalo	15.00 to 16.00
Chicago	14.25 to 14.75
Cleveland	15.00 to 15.50
Detroit	14.00 to 14.25
E. Pa. new mat.	14.50
Pittsburgh	18.00 to 18.50
Valleys	17.50 to 18.00

BUNDLED SHEETS

Buffalo	12.50 to 13.00
Cincinnati, deal.	11.00 to 11.50
Cleveland	13.00 to 13.50
Eastern Pa.	11.00 to 11.50
Pittsburgh	16.50 to 17.00
St. Louis	10.00 to 10.50

SHEET CLIPPINGS LOOSE

Chicago	8.50 to 9.00
Cincinnati	10.00 to 10.50
Detroit	9.00 to 9.50
St. Louis	10.00 to 10.50

STEEL RAILS, SHORT

Birmingham	13.00 to 14.00
Boston	11.25 to 12.25
Buffalo	19.00 to 20.00
Chicago, (3 feet)	18.50 to 19.00
Chicago, 2 ft. and under	19.50 to 20.00
Cincinnati, deal.	19.00 to 19.50
Detroit	17.00 to 17.50
Pittsburgh	19.50 to 20.00
St. Louis	16.75 to 17.25

STOVE PLATE

Birmingham	13.00 to 13.50
Boston consumers..	11.00 to 11.50
Buffalo	14.75 to 15.00
Chicago, net	12.75 to 13.25
Cinn., deal., net	10.00 to 10.50
Detroit, net	9.50 to 10.00
Eastern Pa.	12.50 to 13.00
N. Y. deal., mill	8.75 to 9.00
Pittsburgh	12.50 to 13.00
St. Louis	13.75 to 14.25

ANGLE BARS—STEEL

Chicago	17.00 to 17.50
St. Louis	14.75 to 15.25

COUPLERS, SPRINGS

Buffalo	18.50 to 19.50
Chicago	17.00 to 17.50
Eastern Pa.	19.00 to 19.50
Pittsburgh	20.50 to 21.00
St. Louis	15.75 to 16.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	19.00 to 20.00
Eastern Pa.	19.00 to 20.50
Pitts. billet and bloom crops	22.00 to 22.50
Cleve. billet and bloom crops	17.50 to 18.00

FROGS, SWITCHES, GUARDS

Chicago	16.75 to 17.25
St. Louis	15.25 to 15.75

SHOVELING STEEL

Chicago	15.50 to 16.00
Cleveland	11.75 to 12.00
Detroit	10.75 to 11.00
Pittsburgh	18.25 to 18.50
St. Louis	14.00 to 14.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	10.50 to 11.50
Boston, dealers	11.00 to 11.25
Yard wrought	9.00 to 9.25
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	16.00 to 17.00
Chicago, No. 1	15.75 to 16.25
Chicago, No. 2	15.50 to 16.00
Cinn., No. 2	13.75 to 14.25
Eastern Pa.	16.00 to 16.50
N. Y., No. 1 deal..	12.00 to 12.50
Pittsburgh, No. 1..	14.50 to 15.00
Pittsburgh, No. 2..	18.25 to 18.50
St. Louis, No. 1	13.25 to 13.75
St. Louis, No. 2	14.00 to 14.50

SPECIFICATION PIPE

Boston	10.75 to 11.00
Eastern Pa.	15.50 to 16.00
New York, deal.	11.25 to 11.75

BUSHELING

Buffalo, No. 1	15.00 to 16.00
Chicago, No. 1	14.00 to 14.50
Cinn., No. 1 deal.	11.00 to 11.50
Cinn. No. 2	8.00
Cleveland, No. 1..	13.00 to 13.50
Cleveland, No. 2..	11.25 to 11.75
Detroit, No. 1	12.00 to 12.50
St. Louis, No. 1	10.00 to 10.50

MACHINE SHOP TURNINGS

Birmingham	8.00 to 8.50
Boston	6.25 to 6.50
Buffalo	8.25 to 8.75
Chicago	9.50 to 10.00
Cincinnati, deal.	9.50 to 9.75
Cleveland	10.50 to 11.00
Detroit	7.25 to 7.50
Eastern Pa.	11.50
New York, deal.	8.00
Pittsburgh	10.75 to 11.25
St. Louis	8.00 to 8.50
Valleys	11.00 to 11.50

MIXED BORINGS, TURNINGS

For blast furnace use

Boston, dealers	6.00 to 6.50
Buffalo	11.75 to 12.25
Cincinnati, deal.	9.75 to 10.25
Cleveland	11.25 to 11.75
Detroit	9.00 to 9.25
Eastern Pa.	10.00 to 11.00
New York, deal.	6.25 to 6.50
Pittsburgh	11.75 to 12.25

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	8.00 to 8.50
Boston, chem.	10.00 to 10.50
Boston, dealers	6.50 to 7.00
Buffalo	11.75 to 12.25
Chicago	11.25 to 11.75
Cincinnati, deal.	9.75 to 10.25
Cleveland	11.50 to 12.00
Detroit	9.00 to 9.25
Eastern Pa.	11.00 to 11.50
Eastern Pa., chem.	14.50 to 15.00
New York, deal.	7.00 to 7.50
Pittsburgh	11.75 to 12.25
St. Louis	10.00 to 10.50

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	13.50 to 14.00
Chicago, net	12.50 to 13.00
Cincinnati	10.00 to 10.50
Eastern Pa.	12.50 to 13.00
New York, deal.	9.25 to 9.75
St. Louis	13.00 to 13.50

FORGE FLASHINGS

Boston, dealers	10.00 to 10.25
Buffalo	13.75 to 14.25
Chicago	10.50 to 11.00
Cleve., over 10 in.	13.00 to 13.50
Detroit	12.50 to 12.75
Pittsburgh (light)	15.00 to 15.50

FORGE SCRAP

Boston, dealers	9.00 to 9.50
Chicago	18.50 to 19.00
Eastern Pa.	12.50 to 13.50

ARCH BARS AND TRANSOMS

Chicago, net	21.50 to 22.00
St. Louis	22.00 to 22.50

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal	6.75 to 7.00
Buffalo	14.00 to 14.50
Chicago	13.00 to 13.50
Cleveland	12.50 to 13.00
Eastern Pa.	15.00 to 16.00
Pittsburgh	16.50 to 17.00
St. Louis	12.00 to 12.50

STEEL CAR AXLES

Birmingham	18.00 to 19.00
Boston, ship point	17.00 to 17.50
Buffalo	19.00 to 20.00
Chicago	18.00 to 18.50
Eastern Pa.	22.75 to 23.00
Pittsburgh	21.50 to 22.00
St. Louis	20.50 to 21.00

SHAFTING

Boston, ship point	14.50 to 15.00
Chicago	17.35 to 17.90
Eastern Pa.	19.00 to 20.00
New York, deal.	15.00 to 15.50
St. Louis	18.50 to 19.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	12.00 to 13.00
Boston, iron	14.00 to 14.50
Buffalo, iron	14.00 to 14.50
Buffalo, steel	18.50 to 19.50
Chicago, iron	14.50 to 15.00
Chi., rolled steel	19.00 to 19.50
Cincinnati	12.50 to 13.00
Eastern Pa. cast	16.50 to 17.00
Eastern Pa., rolled	19.00
N. Y., iron, deal.	12.50 to 13.00
Pittsburgh, iron	15.25 to 15.75
Pittsburgh, steel	20.50 to 21.00
St. Louis, iron	15.25 to 15.75
St. Louis, steel	18.00 to 18.50

No. 1 CAST SCRAP

Birmingham, cup.	14.00 to 14.50
Buffalo	16.00 to 17.00
Boston, textile	13.50 to 14.50
Chicago, mach.	17.90 to 18.50
Chicago, railroad.	17.90 to 18.50
Chicago, agri.	16.25 to 16.80
Cincinnati, mach. cupolas, gross	19.50 to 20.00
Cleveland, cupola	16.50 to 17.00
Detroit, net	13.00 to 13.50
East. Pa., cupola	16.00 to 17.00
N. Y., cup., deal.	13.00 to 13.50
N. Y., del. local foundries	17.00 to 17.50
Pittsburgh, cupola	15.00 to 15.50
San. Fran., del.	13.50 to 14.00
Seattle	16.00 to 16.25
St. L. No. 1 mach.	16.00 to 16.50
St. Louis, No. 1	15.00 to 15.50
Valleys	16.50 to 17.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	13.00 to 13.50
Cleve., breakable	12.50 to 12.75
Detroit, auto., net	18.00 to 18.50
Detroit, breakable	9.50 to 10.00
Eastern Pa.	15.75 to 16.00
New York, deal	11.75 to 12.50
Pittsburgh	12.75 to 13.25

MALLEABLE

Boston, railroad	16.50 to 17.00
Buffalo	17.50 to 18.50
Chicago, agri.	15.50 to 16.00
Chicago, railroad	18.50 to 19.00
Cinn., R. R., deal.	15.25 to 15.75
Cinn., agri., deal.	14.25 to 14.75
Cleveland, rail	16.00 to 16.50
Detroit, auto	14.00 to 14.50
St. Louis, rail	16.50 to 17.00

Miscellaneous Scrap

RAILS FOR ROLLING

5 feet and over

Birmingham	14.00 to 15.00
Boston, dealers	12.25 to 12.50
Rails scrap, Boston	11.00 to 12.00
Skeleton, Boston	9.00 to 9.50
Buffalo	16.00 to 16.50
Chicago	17.50 to 18.00
Eastern Pa.	18.00 to 18.50
New York	14.00 to 14.50
Pittsburgh district	18.00 to 18.50
St. Louis	16.00 to 16.50

LOCOMOTIVE TIRES

Chicago, cut	19.00 to 19.50
St. Louis, No. 1	15.50 to 16.00

LOW PHOS. PUNCHINGS

Chicago	17.50 to 18.00
Pittsburgh	20.00 to 20.50

award of 25,000 tons of railroad steel to the Bethlehem Steel Corp. for its plant at Bethlehem, Pa., this consumer has closed on 10,000 tons for shipment to Steelton, Pa. Dealers here are covering at $16, delivered, for the latter point, as against $15.50, delivered, for Bethlehem. The situation otherwise is featureless, with the only price revision a change in stove plate for foundry consumption. This grade is now holding at $9 to $9.50, New York, against the dealers' buying price a week ago of $9.

Philadelphia, March 5.—Scattered sales feature the market for iron and steel scrap, with prices slightly easier.

Buffalo, March 5.—Further sales of No. 1 heavy melting steel are being made. Some reports are that $17 is the minimum while other statements are to the effect that steelworks using both No. 1 and No. 2 have bought the former at $16.50 and the latter at $15. Dealers are paying up to $17.50 for material for steelworks using only select No. 1 steel. Indications point to a heavy turnover of this and other scrap this month.

Pittsburgh, March 5.—Iron and steel scrap prices are steady. Another mill has followed Carnegie Steel Co. in purchasing heavy melting steel. The Steel corporation subsidiary recently placed orders of about 40,000 tons for several mills, paying $18.25 for most of the No. 1 grade. Although this buying took a substantial tonnage out of the market, an independent mill was able to buy at $18.50. Other grades generally are unchanged. Steel specialties, however, are fairly active and strong at $20.50 to $21. Heavy breakable cast continues easy and quiet.

Cleveland, March 5.—Scrap continues steady. Dealer transactions give most support to the market. Recent mill purchases have been confined to high-grade material, around $18 per ton for heavy melting steel. Regular material is quoted at $15.76 to $16.

Cincinnati, March 5.—Iron and steel scrap continues quiet as melters await second quarter orders before taking new tonnages. Turnings and borings are off about 25 cents. Several railroad lists are about to close.

St. Louis, March 5.—Iron and steel scrap is a shade stronger with several items regaining a fractional part of recent declines. Demand is good, and there is steady buying of small lots, which would quickly be large lots if dealers would meet melters' terms. The melt is holding its own and as a rule consumer stocks are not large.

Birmingham, Ala., March 5.—Improved demand for scrap is noted and prices are somewhat firmer. Heavy melting steel has brought higher than $12.50 for best quality.

Toronto, Ont., March 5.—General improvement in sales of iron and steel scrap is seen at Toronto. Hamilton, Ont., consumers are buying steel grades, but almost entirely for spot delivery. Ontario melters are showing interest in machinery cast, stove plate and malleable scrap, and as a result a strong demand has recently developed. Some future contract placing has been done, but most new business is for immediate delivery.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Tons

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	14.00
Iron axles	16.00
Heavy melting steel	9.50
Turnings	7.00
No. 1 mach. cast (net)	15.00
Malleable (net)	13.00

Semifinished Steel

Demand Still Exceeds Supply—Premiums Offered for Wire Rods

SEMIFINISHED STEEL PRICES, PAGE 664

Pittsburgh, March 5.—Semifinished steel retains its strong position, material being scarce. Practically all mills are out of the market as they do not have an oversupply to accommodate their own finishing mills. A number of inquiries are appearing from various users. Some producers having contracts for billets and sheet bars are not anxious to ship material unless urgently needed by consumers. Current prices of $34 for 4 x 4-inch rerolling billets and slabs, and $35 for sheet bars are firm. Wire rods continue steady at $42.

New York, March 5.—A premium of $1 a ton has been offered by certain consumers for wire rods for immediate shipment, but no premiums actually have been paid. The shortage of rods is not acute, however, it being possible to get delivery in a week or ten days. The $42, base, Pittsburgh, price is firm.

Cleveland, March 5.—Demand for semifinished steel continues strong. The leading local merchant producer has opened its books for second quarter at the advance of $1 a ton reported a week ago, and has booked substantial tonnages at the new prices. Contract arrangements with regular customers are being renewed. All of its 14 open hearths continue in operation, and it has a backlog for more than three weeks. Sheet bars are $35, base, Cleveland and Youngstown, 4 x 4-inch billets and equivalent slabs $34, and billets under 4 x 4 inches $35.

Philadelphia, March 5.—Moderate lots of billets were sold in the week at the new prices, $34, base, Pittsburgh, for rerollers and $39 for forging quality. It is too early to determine if the former prices have disappeared.

Chicago, March 5.—Producers of semifinished material cannot begin to fill the demand. Little semifinished material is available for the open market. One producer is withdrawing all quotations. Commercial, or rerolling billets, 4 x 4-inch base, are steady at $35, Chicago. Sheet bars continue $35.

Youngstown, O., March 5.—Semifinished material has become harder to get. Old customers implore vainly for larger tonnages of slabs and sheet bars, being referred to outside mills for material not already covered by contract. Producers could operate additional finishing mills of their own were the steel available. Independent open hearths are running at 96 per cent this week, against 94 per cent last week.

Pig Iron

(*Concluded from Page* 665)

of small tonnages for prompt shipment is active. Shipments in February were the largest for that month since the war. The leading local producer reports shipments for the past six weeks the largest for any similar period in its history. While operating at capacity, its current shipments exceed output. Sales in the past week aggregate 10,000 tons. The largest was 5000 tons of basic to an east side interest. This was the first transaction in basic this year. Prices are firm.

Birmingham, Ala., March 5.—Spot pig iron buying is active, and delivery during March is likely to exceed production. A few inquiries have been received for second quarter, but no sales are reported. Foundry iron is $16.50, base, Birmingham, and indications are that this will apply for the next 90 days. Production in March will equal that of January, when a record for more than two years was reported.

Toronto, Ont., March 5.—With books now open for second quarter, blast furnace representatives report more activity in the pig iron market. Several good orders were closed during the week for delivery to the end of June. New inquiry indicates considerable business for early closing. Prices are firm.

Boston, March 5.—While there have been reports of a weaker situation in the Buffalo pig iron market, some leading interests dispute this, and it is generally understood that if anything a firmer price situation has developed. It is now understood that $18 to $18.50 is the prevailing figure. There was a report that a Massachusetts heater maker had bought 4000 tons of iron at $21, delivered, which was intimated to have been done by Buffalo interests, though this lacks confirmation. Not much tonnage was booked in the past week, the price situation serving to hold back orders. With more definite prices some of the delayed buying is expected to develop.

Philadelphia, March 5.—Baldwin Locomotive Works has bought 1800 tons of foundry iron fo rits Eddystone division. Numerous other smaller sales have been made during the past week but the total is only fair. On the other hand, specifications against contracts continue brisk. The usual foundry price is $21, base, eastern Pennsylvania furnace, with occasional exceptions.

The Market Section

Bars

Mills Still Buried Under Heavy Tonnage and Deliveries Lag Behind Needs—Prices Steady

HEAVY specifications against soft steel bar tonnages keep mills from gaining against backlogs and consumers are forced to carry heavier supplies to meet their needs. First quarter contracts are expected to be specified fully by mid-month. Some second quarter contracts have been signed, apparently at the full price. Protections at first quarter price are being curtailed.

BAR PRICES, PAGE 663

Chicago, March 5.—Buyers formerly ordering out about 30 days' supplies of bars and other finished steel for stock and early consumption now are taking enough material for 45 to 60 days' needs, due to delayed deliveries. Possibility is seen by one producer that he may be obliged to reduce schedules on his finishing mills, probably on mills rolling lighter bar products, because of the need for making semifinished materials go as far as possible in supplying heavier and more urgent tonnage. Producers are planning to hold to March 15 as the deadline for first quarter specifications. Protections allowing users to specify additional tonnage on first quarter contracts are being largely withdrawn, according to mills. The week just closed was the third heaviest since 1925 in specifications.

Soft steel bars are being more generally quoted on the basis of 2.05c to 2.15c, Chicago. Only those buyers who have been able to await mill convenience in deliveries are buying at 2.15c, while other miscellaneous users turn to warehouses. Rail steel bars are 1.95c, Chicago Heights, to manufacturing users. Rail steel fence post business is promising.

New York, March 5.—Demand for steel bars is at a somewhat smaller volume than in January and February, but mills believe the recent announcement of an advance of $1 a ton will have the effect of causing heavy specifications during March against first quarter contracts.

Pittsburgh, March 5.—Delivery of hot-rolled merchant bars continues deferred three to four weeks as specifications hold to the previous high rate. February shipments for a number of mills lagged behind specifications and producers entered March with better backlogs than a month before. There is lack of anticipatory buying to avoid the higher second quarter price since the recent rate of specifications would have taken practically full contract quotas. Expiration of current contracts March 15, however, is expected to find all contracts well specified. Some second quarter contracts have been signed and producers profess to be holding to 1.95c, Pittsburgh, on new business. Most tonnage moving, however, is applied against contracts at 1.90c.

Cleveland, March 5.—Despite the shorter month, some makers of bars received heavier specifications in February than in January. Shipments continued to lag somewhat behind specifications, with the result makers' backlogs have increased slightly. Automotive requirements dominate. Makers are insisting on specifications against first quarter contracts by March 15. Second quarter contracting is not being pushed. Outside mills quote soft steel bars at 1.95c to 2.00c, delivered Cleveland, while local mills quote, as a rule, 1.95c, base, Cleveland.

Sheet and Tin Plate Mill Wages Unchanged

Youngstown, O., March 5.—Sheet and tin mill wages will remain unchanged through March and April. The average sales price of Nos. 26, 27 and 28 gage black sheets in January and February was 3.00c, as reported by representatives of independent sheetmakers and the Amalgamated Association of Iron, Steel and Tin Workers at a meeting here March 4. Sheet and tin plate mill wages remain 25½ per cent above base. Following are comparisons of price averages for the periods designated:

Jan.-Feb., 1929	3.00c		unchanged
Nov.-Dec.	3.00c		unchanged
Sept.-Oct.	3.00c		unchanged
July-Aug.	3.00c		unchanged
May-June	3.00c		unchanged
March-April	3.00c		unchanged
Jan.-Feb., 1928	3.00c		unchanged
Nov.-Dec.	3.00c	—3	per cent
Sept.-Oct.	3.10c	+3	per cent
July-Aug.	3.00c		unchanged
May-June	3.00c		unchanged
March-April, 1927	3.00c	—3	per cent

Plates

Heavy Demand Developing for Railroad Equipment, and Barges —Market More Active

PLATE business is more active. An inquiry for 4300 freight cars for the New York Central requires 65,000 tons of steel, largely plates. The Erie railroad's budget for 1929 calls for 60,000 tons of steel, 80 per cent of which is plates. Barge work pending at Pittsburgh will take over 30,000 tons of plates and shapes. Additional tonnage has been closed at Chicago for oil tanks.

PLATE PRICES, PAGE 663

New York, March 5.—Miscellaneous demand for plates is well maintained. Eastern mills continue to operate at about 70 per cent, with backlogs sufficient for two to three weeks. Large tonnages are in prospect. The Erie railroad budget for 1929 calls for about 60,000 tons of steel for cars, locomotives and boats, and about 80 per cent of this tonnage will be plates. A water line in the borough of Queens, on which bids will be opened March 15, will require about 2500 tons of plates. Vacuum Oil Co. recently has bought some scattered tonnages of plates and tanks for its plant at Paulsboro, N. J. The inquiry of the Standard Oil Co. of New Jersey for tankage or tank plates for a new plant at Paulsboro, N. J., sill is pending. The taking of bids on a pipe line for Albany, N. Y., continues to be postponed. About 65,000 tons of steel is required in the New York Central's inquiry for 4300 freight cars.

Pittsburgh, March 5.—River barge work features plate business in this district. The Inland Waterways Corp. will require 25,000 tons of plates and shapes for 50 cargo barges on which it will open bids April 8. The Island Creek Coal Co. has taken bids on 16 coal barges involving 3000 tons of plates and shapes. Other pending work will require from 5000 to 7000 tons of plates. Specifications are at a slightly higher rate than a month ago. Prices are steadier, although 1.95c, base, Pittsburgh, will find little application until next quarter.

Cleveland, March 5.—Miscellaneous plate orders from various lines of consumption figure in each week's business. Deliveries are usually obtainable within a week or 10 days. On the recent Illinois Central locomotive order, Otis Steel Co. plates were specified for the boilers. The tank and tender steel has been placed with Lukens Steel Co. A fireboat for Detroit, awarded Toledo Shipbuilding Co., will take 400 to 500 tons. Some attractive orders for plates have been placed by builders of power shovels. One booked orders for 33 at the recent road builders' equipment show at Cleveland and has been purchasing plates liberally. The 1.95c, base, Pittsburgh, price is holding for second quarter, and a few arrangements have been completed. Mills desire specifications on first quarter contracts by March 15.

Chicago, March 5.—Minimum de-

liveries on plate business that have been on the books for some time are four weeks. Business now coming in is being extended eight weeks or longer. All plate mill capacity in the district is engaged, with mill output sold up until close to June 1. Oil and gas storage business has lost some of its relative importance. One mill has closed on 9000 tons of plates, including the order from the Pacific Gas & Electric Co., San Francisco, for gas holders. Another mill has taken 1000 tons in miscellaneous lots. About 12,000 tons is on inquiry from the oil fields in the Southwest and West. Mills are more nearly on the 2.05c to 2.15c, Chicago, basis for new business, with corresponding differentials for tonnage orders.

CONTRACTS PLACED

4500 tons, one 10,000,000-cubic foot gas holder, Pacific Gas & Electric Co., San Francisco, to Stacey Bros. Gas Construction Co.

4000 tons, one 8,000,000-cubic foot gas holder, Pacific Gas & Electric Co., Oakland, Calif., to Bartlett & Hayward.

700 to 900 tons, 17 locomotives for Illinois Central railroad, awarded recently to Lima locomotive Works; 400 to 500 tons boiler steel to Otis Steel Co.; 300 to 400 tons tank and tender steel to Lukens Steel Co.

CONTRACTS PENDING

25,000 tons, plates and shapes, 50 cargo barges, for Inland Waterways Corp., Washington; bids close April 8.

12,000 tons, oil tank storage work in the Southwest, for unstated interests.

3000 tons, plates and shapes, 16 coal barges for Island Creek Coal Co., Huntington, W. Va.; bids closed.

400 to 500 tons one fireboat for Detroit. Contract awarded Toledo Shipbuilding Co., which soon will let the steel.

120 tons, 12 and 16-inch welded steel pipe, Upland, Calif. Job went concrete pipe.

Chicago Rate 95 Per Cent

Chicago, March 5.—Twenty-nine of the 36 steelworks furnace stacks in the district are active and the steelworks operating rate continues at 95 per cent. Illinois Steel Co. has 20 of its 27 steelworks stacks active, ten at Gary, nine at South Chicago, and one at Joliet. Inland Steel Co. has four active, Wisconsin Steel Co. three, and Youngstown Sheet & Tube Co. two steelworks stacks blowing. Sheet mill operations are at 85 per cent, while rail mills have been stepped up to near capacity operations.

Pittsburgh at 90 Per Cent

Pittsburgh, March 5.—Steel ingot production in the Pittsburgh district is approximately at a 90 per cent rate, compared with 85 per cent a month ago. Operations in some finishing departments make an unfavorable showing but these are offset by unusual activity in other branches. Strip mills continue at capacity and sheet mills hold at 95 per cent, with tin plate at 85. Welded pipe mills, however, are on a 60 per cent basis, with some even lower. Seamless mills are at about 80 per cent.

Pipe

Line Pipe Interest Is Quickened — Operations Stepped Up to Meet Increased Spring Demands

AFTER a quiet spell, line pipe again forges to the front with two awards totaling 19,000 tons and a 20,000-ton lot about to be placed. Cast pipe operations are increased by 15 per cent in face of augmented spring demands. Featured awards include 2000 and 1086 tons together with smaller items. Municipalities in Middle and Far West are figuring on 100 to 1000-ton lots.

PIPE PRICES, PAGE 664

Chicago, March 5.—Numerous inquiries are appearing from engineers and contractors for estimates on cast iron pipe programs. This indicates that much spring business is shaping up. Carload activity is more spirited. Widespread interest is shown in the inquiry by Bloomington, Ill., for 10 miles of 24-inch pipe, more than 50 sets of specifications having gone out to prospective contractors for cast, concrete and steel pipe. Bids close tomorrow. Jackson, Mich., is inquiring for 220 tons of 6 and 8-inch. Cast pipe foundries are operating now at 90 to 95 per cent, compared with 75 to 80 per cent in recent weeks. Carload prices for larger diameters are steady at $45.20 to $46.20, delivered Chicago.

New York, March 5.—Inquiries for cast pipe are slightly more numerous, but the market still is far from brisk. An outstanding award involves about 2000 tons of gas pipe for a local utility company and a leading inquiry totaling 1448 tons, including 1398 tons of 24-inch class B pipe for Rockville Center, Long Island. Notwithstanding determined efforts of some cast pipe makers to maintain a firm market, the situation continues spotty. One seller is endeavoring to maintain $42.50 on class B pipe, 6 inches and over in lots of 200 tons, with concessions of $1 or so for the larger quantities, but quotations under such levels continue to be noted.

Pittsburgh, March 5.—Line pipe business is more active following a few quiet weeks. Spang, Chalfant & Co. booked 150 miles of 8⅝-inch outside diameter seamless pipe for a line for the Texas Co. involving about 12,000 tons. The Youngstown Sheet & Tube Co. is understood to have received an order from the Standard Oil Co. of New Jersey for 87 miles of gathering line of 8⅝-inch diameter, totaling about 7000 tons. The large line to be laid from Monroe, La., to St. Louis, pending for some time, remains open. Demand for merchant pipe shows little change and recent quietness in welded material and steady demand for seamless pipe continues. Mechanical and boiler tubing remain fairly active. Operations hold around 60 per cent for welded pipe and 80 per cent for seamless.

Cleveland, March 5.—Buttweld pipe orders are growing in number, although individually small. For the most part single carloads are bought by jobbers as they are needed to round out stocks against spring requirements. Hope Engineering Co. has not yet placed the 20,000 tons involved in the contract it was recently awarded by the Sinclair Refining Co. for a 360-mile line of 10 and 12-inch oil pipe from Dymeight, Okla., to Joliet, Ill.

Birmingham, Ala., March 5.—Production and delivery of cast iron pipe are steady. Lettings lag a trifle. With several specifications in sight, prospects are somewhat brighter for the next week or two. A good market then will continue through the spring and into the summer. Apprehension is felt here on revision of freight rates from this district. The interstate commerce commission is reported planning to advance from 69 cents to $2 per ton.

CONTRACTS PLACED

CAST PIPE

2000 tons, 8 and 12-inch gas pipe for Brooklyn Union Gas Co., Brooklyn, N. Y., to Donaldson Iron Works; special castings were awarded the Warren Foundry & Pipe Co.

1086 tons, 2 to 10-inch class 250, Lomita district No. 13, Los Angeles, to Pacific States Cast Iron Pipe Co.

370 tons, 6 and 8-inch class B pipe, Madison, N. J., to R. D. Wood & Co.

349 tons, 12-inch class B, Glendora, Calif., to American Cast Iron Pipe Co.

97,000 feet, 60,000 feet of 6-inch, 30,000 feet of 8-inch, and 7000 feet of 12-inch pipe for Roseville, Mich., awarded through contractor.

STEEL PIPE

12,000 tons, 8⅝-inch seamless for Texas Co. to Spang, Chalfant & Co.

CONTRACTS PENDING

CAST PIPE

2500 feet, 6 and 8-inch cast pipe for Ridgewood, N. J.; bids March 12.

2173 tons, 4 to 24-inch class B, improvement South Fifty-sixth street, Tacoma, Wash. Bids postponed until March 4.

1448 tons, comprised of 1398 tons of 24-inch Class B pipe and 50 tons of 3 to 12-inch class A pipe, Rockville Center, Long Island, N. Y.

753 tons, 4 to 12-inch class B, Glendale, Calif.; bids opened.

330 tons, 4, 6 and 8-inch class B, Medford, Mass.; new bids asked.

324 tons, 10 to 20-inch class B and C, Wenatchee, Wash. Bids March 18.

220 tons, 6 and 8-inch pipe for Jackson, Mich.; bids March 5.

215 tons, 4 and 6-inch class C, improvement El

Prado avenue, San Diego, Calif. Bids opened.
200 tons, cast pipe for navy department for installation at Dahlgren, Va.
178 tons, 4 and 6-inch class C pipe, improvement Lansing drive, San Diego, Calif. Bids March 4.
144 tons, 4 and 6-inch class B, improvement Plata avenue, San Diego, Calif. Bids opened.
122 tons, 4 and 6-inch class B, Redwood City, Calif. Bids March 4.
Unstated tonnage, Malden, Mass.; new bids asked.

STEEL PIPE

20,000 tons, 360-mile line of 10 and 12-inch oil pipe for Sinclair Refining Co., from Dymeight, Okla., to Joliet, Ill. General contract to Hope Engineering Co.

Tin Plate

Pressure for Material Relaxes—Operations Average 85 Per Cent

TIN PLATE PRICES, PAGE 663

Pittsburgh, March 5.—Tin plate is experiencing its usual slow period. There is little pressure on mills for delivery, as it is too early for heavy demand from canmakers. Some mills continue at capacity, however, with the average for the district about 85 per cent. Outlook for 1929 has lost none of its brightness, although the weather factor makes estimates of the season packs of various vegetables only approximations. Small carryovers from last year, however, favorably affect the outlook. Tin plate continues $5.35 per base box, Pittsburgh.

Iron Ore

Ford Issues Inquiry for 360,000 Tons —Market Tone Is Strong

IRON ORE PRICES, PAGE 664

Cleveland, March 5.—Consumers of Lake Superior iron ore are showing keen interest in the market. The Ford Motor Co. has issued an inquiry for 360,000 tons, divided among various grades in about the same proportion as last year. The inquiry is smaller than in 1928, but this may not indicate the tonnage required, as last year the company purchased about 450,000 tons, considerably more than its inquiry. Lake Superior iron ore producers are negotiating with customers, and mention prices 25 cents and more above those prevailing last year. Sales to the Ford company have been a factor in establishing market prices for several seasons past. Consumption is heavy and supplies at lower lake docks and furnaces May 1, it is estimated, will be 4,000,000 tons less than on May 1, 1928. Some producers estimate the 1929 season shipments at 59,000,000 tons, compared with 54,800,000 tons in 1928.

Latest developments in manganese steels will be discussed by John Howe Hall, metallurgist, Taylor Wharton Iron & Steel Co., High Bridge, N. J., before the Indianapolis chapter of the American Society for Steel Treating, March 11.

Sheets

February Shipments Set New Record for the Month—Backlogs Continue Heavy

A CONTINUATION of a heavy volume of orders for sheets is evidenced by difficulties in obtaining deliveries. Some users unable to obtain delivery before four to eight weeks are seeking new sources of supply. February shipments in general set a new record for the month, and leading producers were unable to make a substantial reduction in backlogs.

SHEET PRICES, PAGE 663

Pittsburgh, March 5.—February shipments of sheets were at a peak level for that period, but despite high operations mills were unable to make an appreciable reduction in backlogs last month. Tonnage now on books will engage producers through March and delivery earlier than four weeks is difficult to obtain on most grades. Shipments of full finished material are deferred six weeks or more, due largely to lack of sufficient capacity for normalizing rather than for rolling. Leading automobile builders are heavy buyers, and are showing greater interest in future requirements. Some intimations are heard of a price advance on autobody sheets unaffected by the recent increase of $2 on other grades. For this reason mills are not anxious to make second quarter contracts. The largest tonnages in several years are involved in protections for railroad car builders for sheets for work now pending. Prices are steady at 2.95c, base, Pittsburgh, for black sheets; 3.00c for tin mill black; 3.70c for galvanized; 2.20c for blue annealed, and 4.10c for autobody. Operations continue at 95 per cent. American Sheet & Tin Plate Co. has started its Leechburg, Pa., works, down for several weeks to repair storm damage.

Buffalo, March 5.—Sales of black and full finished sheets continue heavy. On the latter grade shipping dates are extended into June by some sellers. Ruling prices are 3.215c, base, Buffalo, on black and 4.365c, Buffalo, on full finished. District steelworks are operating at considerably more than 90 per cent.

New York, March 5.—Specifications for sheets continue active although not so much as a few weeks ago. Mills generally are quoting the new prices, 2.95c, base, Pittsburgh, for black, 2.20c for blue annealed and 3.70c for galvanized. Some, however, will take additional first quarter business at the old prices. It is difficult to get delivery of sheets in less than three weeks. Certain mills are restricted in their ability to take new sheet business because of difficulty in getting sheet bars.

Youngstown, O., March 5.—New inquiries for sheets are receiving scant attention today, except for deliveries far ahead. Specifications continue to come in floods, with appeals for preferred rolling position. This especially is true of autobody sheets. Some makers are booked well past the middle of May. Common black sheet mills are sold four to six weeks ahead, galvanized demand is picking up, and blue annealed makers are booked three to four weeks in advance. Independent mills this week are scheduled at 98 per cent of capacity against 96 last week. Common black sheets are firm at 2.95c, base, Pittsburgh, galvanized 3.70c, blue annealed 2.90c and autobody 4.10c.

Philadelphia, March 5.—Sheet specifications have decreased, compared with January and February averages. Most mills are quoting the new prices on new business, but some have made no change.

Cleveland, March 5.—Sheet business continues to pile up on makers' books. Users faced with delivery dates deferred up to eight weeks are offering their tonnages elsewhere than their regular sources of supply. One Ohio maker refused 1500 tons in one order a few days ago. Most of the tonnage wanted is for automotive or metal furniture purposes. One maker of the latter is filled up until late May. It has advanced its prices $2 or $1.15 above the 2.95c, Pittsburgh base, on black sheets. Some black at 2.85c, Pittsburgh, still is available for delivery this quarter, and some barrel stock has been sold for less.

Chicago, March 5.—Heavier buying of galvanized and corrugated material from the roofing trade features the sheet steel market. More open weather in the Southwest has brought out growing orders from the outdoor roofing trade in that area. Business is being booked at the new prices and many buyers are extending their specifications because of deferred delivery. Shipments range from four to five weeks on black, galvanized and blue annealed. The new top prices, Gary and Indiana Harbor mill basis, are 3.05c, for No. 24 black, 3.80c for No. 24 galvanized, and 2.30c for No. 10 blue annealed, with prices $1 a ton higher than these for local delivery.

St. Louis, March 5.—Demand for sheets is well sustained except galvanized material. Producers and distributors are well satisfied with immediate and prospective business. The leading local producer reports capacity operations in all departments except galvanizing, which is at 65 to 70 per cent. Prices are steady.

Structural Shapes

Western Bridge Takes 21,840 Tons—Office Building in East, 10,000 Tons—Numerous Inquiries Pending Require 1000 to 3000 tons

TOPPED by a Western bridge taking 21,840 tons and a Philadelphia office building requiring 10,000 tons, structural awards this week total 55,933 tons, one of the largest weeks of the year. The 50,000-ton bridge included in last week's compilation, it is ascertained, has not been placed. Prospects of the early award of a bar mill in the Chicago district, a sheet mill at Monroe, Mich., and a steel mill at Detroit brighten prospects considerably. Pending inquiries are slow to reach the actual bidding stage but mills are receiving specifications liberally so that delivery dates usually are four weeks deferred. Active inquiries in the East cover such items as 8000 tons for a subway section, 2300 tons for an office building, and 3000 tons for a school.

STRUCTURAL SHAPE PRICES, PAGE 663

New York, March 5.—Actual buying continues relatively light but inquiries for structural steel are more numerous. They include larger individual tonnages, such as 8000 tons for a subway section. According to a survey by one large mill, approximately 450,000 tons, in projects involving 1000 tons or more, is scheduled for placing in the East before the end of the first half and in the Middle West about 375,000 tons. On current shape specifications the market continues at 2.145c to 2.195c, New York, but on business running into second quarter mills endeavor to obtain $1 a ton higher.

The New York Structural Steel Board of Trade reports a total of 27,000 tons placed in the Metropolitan district in February. This is exclusive of bridges, piers, subways, etc. It compares with 20,825 tons for January and 35,000 tons for December.

Boston, March 5.—A large number of small orders has built up the total of structual steel tonnage. Large lettings are practically at a standstill. A 200-ton nurse's home for Mattapan hospital and 350-ton apartment building are pending.

Philadelphia, March 5.—Shape business is somewhat slower here and the price situation continues far from stable, with 2.01c, delivered, Philadelphia, representing the usual carload business.

Pittsburgh, March 5.—Specifications for plain structural material are slow to expand and fabricators in this district report little improvement in recent quietness in the market. Inquiry is steady but large work is lacking. Most consumers are under contract for plain material at 1.90c, and the 1.95c price finds little application.

Cleveland, March 5.—Awards were negligible for this immediate vicinity this past week. Immediate prospects are not particularly bright. The only live proposition now is the Akron Bell telephone building, 1970 tons. The general contractor will probably buy the steel before the week is out. The Michigan Central terminal building, 1300 tons, at Detroit went to Whitehead & Kales Co., and the 1000-ton plant for the Kokomo Steel & Wire Co., Kokomo, Ind., to the Indiana Bridge Co. Second quarter contracting has started in a small way at the 1.95c, Pittsburgh, figure. Specifications on this quarter's arrangements must be completed by March 15. Large inquiries are expected soon on the new plants for the Newton Steel Co., Monroe, Mich., and the Great Lakes Steel Corp., Detroit.

Chicago, March 5.—Buyers who fear disappointment in deliveries are accumulating their specifications. As a result structural mills have been given individual tonnages nearly double those of a few weeks ago. Mill schedules are much heavier and the delivery situation is tightening. Specifications from the car shops are adding to schedules of the heavy mills. Car building specifications still are far below the peak, being at the rate of 10,000 to 15,000 tons of shapes and plates monthly New building work is coming out. Inland Steel Co. will have a good-sized program, including 3000 tons for its new 10-inch bar mill at Indiana Harbor. Several fabricating shops are working on the nearly 60,000 tons for the Chicago Merchandise Mart. Mills are naming a minimum of 2.05c for general tonnage after specifications are completed on first quarter business.

Awards Compared

	Tons
Awards this week	55,933
Awards last week	34,439*
Awards two weeks ago	21,498
Awards this week in 1928	30,688
Average weekly awards, Feb.	33,361
Average weekly awards, 1928	39,082
Average weekly awards, 1929	35,729
Total awards to date, 1928	447,501
Total awards to date, 1929	357,292

*Revised

CONTRACTS PLACED

21,840 tons, bridge over Carquinez Straits, Southern Pacific Co. to United States Steel Products Co.

10,000 tons, office building, Pennsylvania railroad, Sixteenth and Seventeenth streets, Philadelphia, to Bethlehem Steel Co.

3985 tons, car shop, Chesapeake & Ohio railroad, Huntington, W. Va., to McClintic-Marshall Co., through Hughes-Foulkrod Co. general contractor.

2500 tons, mill building, Interstate Iron & Steel Co., South Chicago, Ill., to Worden-Allen Co.; previously reported to unstated fabricator.

1850 tons boiler shop, Pennsylvania railroad, Philadelphia, to Shoemaker Bridge Co.

1400 tons, school, No. 223, New York, to Easton Structural Steel Co.

1350 tons, Shriner's Mosque, Altoona, Pa., to Brown-Fayro Co.

1300 tons, terminal building, Michigan Central railroad, Detroit, to Whitehead & Kales Co.

1050 tons, Farragut high school, Chicago, to Duffin Iron Co.

1039 tons, municipal auditorium, New Orleans, reported placed with Lukens Steel Co.

1000 tons, plant, Kokomo Steel & Wire Co., Kokomo, Ind., to Indiana Bridge Co.

800 tons, loft building, 329 West Thirty-ninth street, New York to Lehigh Structural Steel Co.

755 tons, office building, Marshall Field & Co., Oak Park, Ill., to Midland Structural Steel Co.

700 tons, high school, Damen avenue and Foster street, Chicago, to Gage Structural Steel Co.

687 tons, two bridges, Baltimore & Ohio railroad, Locust Point, Md., to McClintic-Marshall Co.

620 tons, train sheds, St. Louis, to Mississippi Valley Structural Steel Co.

560 tons, Bank of Philadelphia & Trust Co., North Philadelphia, to American Fabricated Steel Co.

500 tons, apartment, No. 4 Sutton place, New York to Easton Structural Steel Co.

478 tons, medical and dental building, Georgetown university, Washington, to Barber & Ross Inc.

450 tons, addition, Commonwealth Steel Co., Granite City, Ill., to Mississippi Valley Structural Steel Co.

450 tons, eight bridges for Chartiers Southern railroad, to American Bridge Co.

435 tons, bridge over Agua Fria river, Phoenix, Ariz., to unstated interest.

405 tons, including 365-ton building No. 92 and 40-ton service building, Packard Motor Car Co., Detroit, to R. C. Mahon Co.

370 tons to Virginia Bridge & Iron Co., including 300 tons, main building, William and Mary college, Williamsburg, Va., through Tood & Brown, general contractor; and 70 tons, store building, through Cleaton & Thurman, Roanoke, Va., general contractor.

364 tons, warehouse, Draper Corp., Spartansburg, S. C., to Greenville Steel & Foundry Co.

350 tons, Bayonne, N. J., approach to Kill Van Kull bridge, to Bethelehem Steel Co., through P. T. Cox.

320 tons, including 250-ton stamping building and 70-ton enamel oven housing, Hupp Motor Car Corp., Detroit, to R. C. Mahon Co.

270 tons, market building, Quincy, Mass., to Palmer Steel Co.

250 tons, armory, Utica, N. Y., to independent fabricator in that district.

250 tons, building, Lycoming Foundry & Machine Co., Williamsport, Pa., to Belmont Iron Works.

250 tons, assembly building, Oakland Motor Car Co., Detroit, to R. C. Mahon Co.

200 tons, apartment, Lake and Madison streets, Oakland, Calif., to Pacific Coast Engineering Co.

200 tons, school, Philadelphia, to McClintic-Marshall Co.

180 tons, refinery, Gulf Refining Co., Girard Point, Philadelphia, to Montgomery Iron & Steel Co.

180 tons, office building, Spicer Mfg. Co., Pottstown, Pa., to McClintic-Marshall Co.

150 tons, mill building, Lebanon, Pa., to Mc-

Clintic-Marshall Co.

150 tons, state highway bridge, Maryland, to Deitrich Bros.

140 tons, bank, Westwood, N. J., to Harris Structural Steel Co.

140 tons, plating room, Cadillac Motor Car Co., Detroit, to R. C. Mahon Co.

115 tons, factory, boiler house and test building, Warner Aircraft Corp., Detroit, to R. C. Mahon Co.

100 tons, grand stand, state fair, Puyallup, Wash., to Isaacson Iron Works.

100 tons, miscellaneous work, including 75 tons trusses and girders for Delray power house, Detroit Edison Co., Detroit, to R. C. Mahon Co.

100 tons, plant, Canadian Wirebound Boxes Ltd., Toronto, Ont., to Dominion Bridge Co.

100 tons, building, Wisconsin Steel Co., South Chicago, Ill., to Vierling Steel Works.

CONTRACTS PENDING

35,000 to 40,000 tons, bridge over Chesapeake bay, still pending; this contract, but said to have involved 50,000 tons, was noted in last week's issue as reported placed.

12,000 tons, courthouse at Milwaukee; McClintic-Marshall Co., low at $786,900 delivered. Other bidders: Wisconsin Bridge & Iron Co., $816,000; J. C. Theilacker Co., Milwaukee, $817,000; Bethlehem Steel Co., $820,000; Milwaukee Bridge Co., $849,000. Action expected March 8.

8000 tons, subway section No. 7, route No. 109, Brooklyn, N. Y., contractors' bids to be opened March 15.

3000 tons, 10-inch bar mill building, Inland Steel Co., Indiana Harbor, Ind.

3000 tons, textile school, Eighteenth street, New York, previously noted as involving approximately 2000 tons; bids March 12.

3000 tons, Ford Motor Co., Long Beach, Calif. Bids being received.

2300 tons, 26-story office building, Realty Construction Co., 401 Broadway, New York.

2000 tons, cable plant addition, Western Electric Co., Chicago, General contract to Turner Construction Co.

2000 tons, smelter, Eureka Smelting Co., Balckburn, Nev. Bids being received.

1970 tons, exchange building, Ohio Bell Telephone Co., Akron, O. General contractor, W. J. Schirmer & Co., Cleveland, has given fabricators until March 6 to file final bids. Tonnage probably will be placed before this week

1505 tons, bridge, West Spokane street, Seattle. Bids received.

1500 tons, trade school, Deane street and Third avenue, Brooklyn, N. Y., previously noted as contemplated; bids March 7.

1400 tons, addition to office building, Milwaukee.

1200 tons, highway bridge in Minnesota.

1100 tons, municipal museum of art, New York; previously noted as contemplated.

700 tons, women's hotel, Fifty-sixth street, New York.

700 tons, addition to Upjohn building, Seventh avenue and Bedford street, New York.

500 tons, apartment East Fifty-fourth street, New York.

500 tons, barge canal bridge, Tonawanda, N. Y. Bids close next week.

400 tons, building, Franklin Potteries Co., Lansdale, Pa.

400 tons, Raleigh-Fickin memorial, Yale university, New Haven, Conn.

350 tons, apartment building, Beach street, Boston.

250 tons, 4-story garage, 437 East Seventy-first street, New York.

240 tons, Port Richmond, N. Y., approach to Kill Van Kull bridge. Arthur McMullen is low on general contract.

200 tons, highway bridge, Monmouth County, N. J.

200 tons, nurses home, Mattapan, Mass., hospital.

175 tons, addition, Davenport hotel, Spokane, Wash. Bids in.

170 tons, 7-story club, 349 West Forty-eighth street, New York.

150 tons, bridge for the Long Island railroad.

130 tons, apartment, Gough and Austin streets, San Francisco. Bids being received.

100 tons, warehouse, Adeline street, Oakland, Calif. Bids being received.

Unstated tonnage, 26-story hotel, 313 West Forty-fifth street, New York. Sugarman & Berger, architects.

Unstated tonnage, $500,000 building, Simmons National bank, Little Rock, Ark. General contract to William Peterson, Little Rock.

Concrete Bars

Inquiries, Awards Grow—Spring Prospects Bright—Pending List Expands

INDIVIDUAL awards and inquiries as well are larger in the concrete bar market than they have been of late. Several involve from 300 to 1500 tons at a time. Stores for Sears, Roebuck & Co. at five different points are a feature. An 1100-ton bridge is pending at Chicago. General contract for a 1500-ton bridge was let in the West. A 1400-ton lot was let in Cleveland.

REINFORCING BAR PRICES, PAGE 663

Chicago, March 5.—Featuring the reinforcing bar market are two awards of over 600 tons each and one of 525 tons. In addition a fair amount of smaller business is noted. About 1100 tons will be required for the Damen avenue bridge. Chicago. The outlook for fresh tonnage is fair. Tighter credit restrictions on the purely speculative building projects are having an effect and weather conditions hold back pending work. The minimum price of 2.35c for billet bars tends to soften when billet bars are drawn into competition with rail steel bars on individual jobs.

Pittsburgh, March 5.—February tonnage of concrete bars was slightly better than the January total, although improvement in specifications to mills is slow. A dearth of activity is noted in awards in this district and inquiry shows little expansion. Prices continue 2.25c, Pittsburgh, for cut lengths and 2.00c for mill lengths.

Buffalo, March 5.—Pending inquiry for reinforcing bars is expanding. About 3000 tons will probably be needed for two stores for Sears, Roebuck & Co. in Buffalo and Rochester. Plans are not yet in final shape although Turner Construction Co., Buffalo, has both contracts. Two new hotel projects here involve about 500 tons of bars, while 325 tons will be purchased for a school. Operations in reinforcing bar departments are being increased rapidly in anticipation of larger sales.

Cleveland, March 5.—Featured in concrete bars is award of about 1400 tons through the Guthrie Co. to Jones & Laughlin Steel Corp. for work in connection with the Cleveland Union Terminals Co. undertaking. About 500 tons will probably be let before the week is out by W. J. Schirmer & Co., general contractors on the Akron, O., exchange building for the Ohio Bell Telephone Co. While some quote 2.00c, Pittsburgh, on mill lengths, occasionally a buyer uncovers a lower figure on a Cleveland base. This condition too is encountered by rail steel bar sellers who quote 1.95c, mill. Warehouse stock bars are 2.25c to 2.44c Cleveland.

Awards Compared

	Tons
Awards this week	6,550
Awards last week	3,490
Awards two weeks ago	4,283
Awards this week in 1928	4,380
Average weekly awards, Feb.	4,716
Average weekly awards, 1928	6,189
Average weekly awards, 1929	6,185
Total awards to date, 1928	58,375
Total awards to date, 1929	61,853

CONTRACTS PLACED

1400 tons, work in connection with the Cleveland Union Terminals Co. project, Cleveland, to Jones & Laughlin Steel Corp., through the Guthrie Co.

655 tons, Narragansett apartments, 1640 East Fiftieth street, Chicago, to Calumet Steel Co.

650 tons, Von Steuben school, Chicago, to Barton Steel Co.

525 tons, apartment at Hinman and Grove avenues, Evanston, Ill., to unstated interest.

400 tons, addition, Sears, Roebuck & Co., Los Angeles, to Soule Steel Co.

350 tons, building, Sears, Roebuck Co., Indianapolis, to Laclede Steel Co.

300 tons, highway work in Iowa, to several fabricators.

300 tons, apartment, Chicago, to Inland Steel Co.

300 tons, building, Sears, Roebuck Co., Louisville, Ky., to Laclede Steel Co.

275 tons, warehouse, Oakland port commission, Oakland, Calif., to Truscon Steel Co.

260 tons, East Cleveland high school, and William Cullen Bryant grade school, Cleveland, to Bourne-Fuller Co.

200 tons, grain elevator, Minneapolis, to Inland Steel Co.

200 tons, building, Ingelhart Milling Co., Vincennes, Ind., to Laclede Steel Co.

150 tons, wharf Glascock street, Oakland, Calif., to Soule Steel Co.

150 tons, office building, Forty-fifth street and Brooklyn avenue, Seattle, to Pacific Coast Steel Co.

125 tons, Everett city hall, Everett, Wash., to Pacific Coast Steel Co.

110 tons, store building, Rockford, Ill., to Concrete Engineering Co.

100 tons, approaches to Pasco-Kennewick bridge, to Northwest Steel Rolling Mills.

100 tons, work for Chicago, Milwaukee, St. Paul & Pacific railroad, divided among four sellers.

CONTRACTS PENDING

3000 tons, stores, Sears, Roebuck & Co., Buffalo and Rochester, N. Y. General contracts to Turner Construction Co., Buffalo.

1500 tons, bridge over Carquinez Straits, San Francisco, for Southern Pacific Co. General contract to Siems, Helmers & Shaffner Inc., St. Paul.

1100 tons, Damen avenue bridge, Chicago.

900 tons, plant building, Olson Rug Co., Chicago.

500 tons, exchange building, Ohio Bell Telephone Co., Akron, O. W. J. Schirmer & Co., Cleveland, general contractor, to close before week is out.

250 tons, Hotel Delaware, Buffalo. Building contract to Lasser-Preyer Co. Subcontract bids in.

185 tons, West Spokane street bridge, Seattle. Bids in.

Rails, Cars

St. Paul Awards 4150 Cars, Texas & Pacific 1500—New York Central Inquires for 4371

AUSPICIOUS start is given to March car awards by lettings in excess of 6500. Only few thousand more are needed to make first quarter aggregate exceed the 1928 total. Pending inquiries involve more than 15,000, including New York Central's 4371. Rail specifications are mounting, which with car steel specifications bring about practically 100 per cent rail mill operations.

RAILROAD TRACK PRICES, PAGE 664

New York, March 5.—March car business starts off impressively with three contracts involving 6650 freight cars being placed. Chicago, Milwaukee, St. Paul & Pacific has awarded 4150 among seven builders; Texas & Pacific divided 1500 among three and Norfolk & Western has contracted with the Ralston Steel Car Co. for rebuilding 1000 gondola bodies. Featuring demand in the East, is an inquiry for 4300 freight cars and 71 miscellaneous coaches for the New York Central and the placing of 1000 cars for the Maine Central, awarded at the close of last month.

According to preliminary estimates, 16,471 freight cars were placed by domestic lines in February. This would bring the total for the first two months up to 29,667. The likelihood is, however, that this total will be still larger when full returns are available. It is within approximately 15,000 placed during all of last year and with above awards and about 15,000 freight cars now actively pending, it is considered highly possible in some quarters that first quarter business will exceed 44,783, 1928's total.

The first two months showing is the best for any two consecutive months since the latter part of 1924, when business in November and December aggregated 41,754 freight cars. February bookings were the largest in that month since February 1924, when 41,350 freight cars were ordered.

Pittsburgh, March 5.—Railroad equipment builders in this district have better bookings than in the past two years. This applies largely to car builders. The Union Switch & Signal Co. has received a contract to install a signal system on the Pennsylvania railroad between Philadelphia and Washington at an estimated cost of $1,700,000. Producers of track fastenings are fairly well engaged although operations are not abnormally high for this period. Light rail demand is steady but slow. Railroad spikes are held at 2.80c, Pittsburgh.

Chicago, March 5.—Secondary rail tonnage is beginning to come out. This totaled about 5000 tons in the week just closed. St. Louis-Southwestern has ordered 2500 tons of rails as primary tonnage, making a total of about 7500 tons in fresh tonnage. Rail mill operations have been increased from about 50 per cent to approximately capacity. Rail schedules probably will be extended further into the summer than in recent years. Track fastenings orders amounted to about 5000 tons.

Including inquiries from eastern roads, about 14,000 to 16,000 cars are in the market. Missouri Pacific has ordered 500 each automobile and box cars, making its total purchases for this season to exceed 4100. Southern Pacific is in the market for 315 cars, 250 tank and 65 gondolas.

CAR ORDERS PLACED

Chicago, Milwaukee, St. Paul & Pacific, 4150 cars; including 1000 automobile cars to Bettendorf Corp., 1000 ballast cars to Enterprise Railway Equipment Co., (cars to be built by the General-American Tank Car Corp.), 650 stock cars to Standard Steel Car Co., 500 automobile cars to Pullman Car & Mfg. Corp., 350 flats to Ryan Car Co., 300 ore cars and 150 flats to Pressed Steel Car Co. and 200 automobile cars to Pacific Car & Foundry Co.

Chesapeake & Ohio, 12 steel express cars to Pullman Car & Mfg. Corp.

Detroit & Mackinac, combination baggage and mail gasoline-electric rail motor car to J. G. Brill Co.

Great Northern, gasoline-electric rail motor car to J. G. Brill Co.

Huntington & Broad Top Mountain Railroad & Coal Co., combination passenger and baggage gasoline-electric rail motor car, to J. G. Brill Co.

Maine Central, 1000 box cars, to Standard Steel Car Co.

Missouri Pacific, 1000 freight and 20 motor coaches; 500 box going to American Car & Foundry Co. and 500 automobile cars, to Mt. Vernon Car Mfg. Co.

Norfolk & Western, rebuilding 1000 all-steel hopper cars to Ralston Steel Car Co.

Richmond, Fredericksburg & Potomac, gasoline-electric rail motor car, to J. G. Brill Co.

Union Refrigerator Transit Co. 50 refrigerator cars, to American Car & Foundry Co.

Texas & Pacific, 1500 cars including 300 automobile cars to American Car & Foundry Co.; 700 automobile cars to Pressed Steel Car Co.; 500 stock cars and 50 caboose underframes to Pullman Car & Mfg. Corp.

LOCOMOTIVE ORDERS PLACED

Boston & Maine, five locomotives, to Lima Locomotive Works.

Chicago, Milwaukee, St. Paul & Pacific, 15 locomotives to Baldwin Locomotive Works.

South African Railways, six locomotives, to Baldwin Locomotive Works, in addition to six noted last week.

Union Pacific, 20 extra tenders to American Locomotive Co.; these are in addition to 25 locomotives noted in last week's issue as placed with American Locomotive Co.

Western Pacific, five locomotives to American Locomotitve Co.

CAR ORDERS PENDING

Chicago & North Western, five baggage and mail cars.

International Harvester Co., 16 70-ton hopper cars.

New York Central, 4300 freight cars and 71 miscellaneous coaches; specifications include: 1000 70-ton steel drop bottom gondolas, 1000 55-ton steel box cars, 1000 55-ton steel automobile box cars, 500 70-ton steel gondolas, 500 70-ton self-clearing hopper cars, and 300 55-ton steel flat cars.

Northern Pacific, five baggage and mail cars.

Republic Iron & Steel Co. 73 70-ton flat-bottom gondola car bodies.

Southern Pacific, 315 cars, including 250 tank and 65 gondolas.

LOCOMOTIVE ORDERS PENDING

Central of New Jersey, five switch engines.

Bolts, Nuts, Rivets

February Tonnage Greater than January—Rate Holds Well

NUT AND BOLT PRICES, PAGE 664

Pittsburgh, March 5.—February tonnage of bolts, nuts and rivets showed a slight increase over January, despite the shorter month. Specifications continue at the previous active rate, and manufacturers are holding operations at 65 to 70 per cent. Second quarter contracting has not started but no change is anticipated in current prices of 60 to 70 off for bolts and nuts, and 3.10c for large rivets.

New York, March 5.—Demand for bolts and nuts has fallen off further and now is appreciably below the volume of January.

Chicago, March 5.—Contracting for second quarter on bolts, nuts and rivets will be started this week. It is indicated that opposition to 3.20c, Chicago, for large structural rivets will be minimized, partly as a result of the recent advance in finished steel prices. Specifications are equaling the February rate. Operations are about 70 per cent. Bolts and nuts are steady at 60 to 70 off.

Makes High Iron Record

Pittsburgh, March 5.—One of the highest records in pig iron production was established during 1928 by No. 5 blast furnace at the Aliquippa works of the Jones & Laughlin Steel Corp. Total output of this furnace for the year was 368,205 tons, or a daily average of 1006 tons. The largest tonnage for any month was 33,077 and the record daily production was 1277 tons. No excess scrap was used over the scrap produced.

This stack was built in 1919, was rebuilt in 1927 and blown in Aug. 1, 1927. Principal dimensions are as follows: Height, 90 feet; bosh, 26 feet, 3 inches; hearth, 24 feet, 6 inches; stock line diameter, 17 feet.

Foundry For Youngstown

Youngstown, O., March 5.—The United Engineering & Foundry Co. has moved its foundry department from the Frank-Kneeland plant in Pittsburgh to this city, following its policy of augmenting its foundry capacity here. The company has taken contract for a 40-inch blooming mill for the proposed plant of the A. M. Byers Co. at Ambridge, Pa.

The Market Section

Wire

Wire Buying for Manufacturing Best Phase of Market—Nail Demand Is Slack

WIRE buying has changed little, cold weather continuing to hamper outdoor work in much of the West. Manufacturers are the main reliance of mills and are taking steady tonnages. Second quarter contracting is making some headway but has not become general. Nails are the slow factor. Prices are steady at prevailing levels, with no indication of a change.

WIRE PRICES, PAGE 664

Chicago, March 5.—Second quarter contracting for wire products is making progress, with several large buyers signing at first quarter prices. Unfavorable weather in the West and Northwest checks buying. Quotations to large jobbers are 2.55c, Chicago or western mills, for bright plain wire, and $2.70 for wire nails.

Worcester, Mass., March 5.—Specifications for wire and wire products are nearer production and books have been opened for second quarter at same prices, 2.75c, Worcester base, on wire to dealers. Lower-priced contracts have been worked off. New business booked thus far this quarter has not been large, but generally is satisfactory.

New York, March 5.—Operations at wire mills are about 70 per cent. Nail mills are operating at 50 to 55 per cent with demand slowing up somewhat. The $2.75 base, Pittsburgh, price to dealers continues to be maintained on nails, but only moderate quantities are being placed, most buyers getting their tonnage on first quarter contracts. The market on plain manfacturers' wire continues firm at 2.50c, base, Pittsburgh.

Pittsburgh, March 5.—Spotty conditions, largely for seasonal reasons, prevail in wire and wire products. Manufacturers' wire continues in good demand but adverse weather restricts movements of nails. Announcement of fall dating terms on fence material in a number of southern states, just made by several leading producers, is expected to start spring buying. Consumers are in no hurry to sign second quarter contracts in view of unchanged prices, but a number have been signed, with current quotations of 2.50c to 2.60c for plain wire and $2.65 to $2.75 for wire nails.

Cold Finished Steel

Specifications Heavier in Anticipation of Future Needs

COLD FINISHED PRICES, PAGE 663

Pittsburgh, March 5.—Specifications for cold-drawn steel bars are heavier although some of the improvement appears to be in anticipation of future requirements. The recent advance of $2 a ton to 2.30c, Pittsburgh, is influencing consumers to take full quotas on first quarter contracts before the March 15 expiration date. February tonnage showed little change from that of January. A number of second quarter contracts have been signed on which the new price of 2.30c, Pittsburgh, is well maintained.

Cleveland, March 5.—While a start has been made in the booking of second quarter cold finished bar business, producers are holding back. Buyers find the new price 2.35c, Cleveland, quoted generally and the $2 advance is causing them to hesitate. March shipments will be heavier than February's, since demand is strong.

Fluorspar

Foreign Material Is Sold at $20.40, Duty Paid, for Early Shipment

New York, March 5.—Several lots of foreign fluorspar, involving up to 500 and 1000 tons each, have been sold in the United States for early shipment from abroad. The price done is $20.40, duty paid, tidewater, for the 85 and 5 per cent grade.

Lamont Is Sworn In

Washington, March 5.—Robert P. Lamont, president of the American Steel Foundries, Chicago, of whom a biographical sketch appears on page 684 of this issue, was sworn in late today as secretary of commerce following confirmation by the senate.

Strip

Delivery Pressure Continues as Mills Fall Behind—Prices Are Unchanged

FIVE to eight weeks delivery seems to rule on both descriptions of strip and on some sizes it is being extended further. Second quarter books are open at unchanged prices. New extras will have the effect of advancing some and lowering other prices. Production generally is at the highest rate mills can attain. Prices are entirely firm.

STRIP PRICES, PAGE 664

Pittsburgh, March 5.—Pressure for delivery of both hot and cold-rolled strip steel has not lessened and producers are maintaining previous heavy backlogs. Delivery on some narrow sizes of hot strip is extended further and shipment as high as seven to eight weeks is being promised in some cases. Four to five weeks, however, is obtainable on other sizes, with cold-rolled shipments approximating those of the hot material. Producers have opened books for second quarter, and current quotations of 2.00c, Pittsburgh, for hot strip to 6 inches, and 1.90c for 6 1/16 to 24-inch grades are firmly held. Introduction of a new card of extras on cold-rolled strip reverts the base price on this material to the range of 2.75c to 2.85c prevailing before the recent $2 advance to 2.95c.

Worcester, Mass., March 5.—Cold-rolled strip steel is moving briskly at steadier prices, narrow widths predominating at a basis of 3.10c to 3.20c, Worcester base. The new card of extra is generally operative in New England. Demand from stamping makers continues brisk.

New York, March 5.—Mills continue to quote 2.95c, base, Pitsburgh, on cold-rolled strip steel and a number of moderate sales have been made at this figure during the past week. All the mills have announced the adoption of the new extras on cold-rolled.

Philadelphia, March 5.—The 2.95c, base, Pittsburgh, price has been abandoned by some mills on cold strip because they feel the new extras affords sufficient increase over old prices for the present. It is expected the price for second quarter will be 2.85c. Cold strip specifications will keep several makers busy through April. Hot strip deliveries are not generally promised under three or four weeks and 1.90c and 2.00c, Pittsburgh, are prevailing as firm prices on new business.

Cleveland, March 5.—Hot strip mills are so flooded with business they avoid new bookings whenever they can. Producers of cold strip likewise are well filled up. Prices are entirely firm with hot at 1.90c to 2.00c, Pittsburgh, depending upon width, and with cold at 2.75c to 2.85c, Cleveland-Pittsburgh, with the new card of extras.

Chicago, March 5.—Cold-strip steel business is showing an increase, with growing automotive demand. March schedules from automotive builders are heavy. Quotations are now on the basis of 2.85c, Pittsburgh-Cleveland.

Nonferrous Metals

Copper and Lead in Unusually Strong Positions—Red Metal Prices Advance Sharply—Tin Fairly Steady

Prices of the Week, Cents a Pound

	Copper Electro delivered	Copper Lake delivered	Copper Casting refinery	Straits Tin New Spot	Straits Tin York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Feb. 27	18.75	19.00	18.50	48.87½	49.00	7.10	7.00	6.35	23.90	9.25	35.00
Feb. 28	19.20	19.30	19.10	48.87½	49.00	7.12½	7.00	6.35	23.90	9.25	35.00
Mar. 1	19.50	19.55	19.25	48.87½	48.87½	7.12½	7.00	6.35	23.90	9.25	35.00
Mar. 4	19.50	19.57½	19.25	48.87½	48.87½	7.15	7.05	6.35	23.90	9.25	35.00
Mar. 5	19.50	19.57½	19.25	48.80	48.92½	7.15	7.05	6.35	23.90	9.25	35.00

NEW YORK, March 5.—Copper and lead seldom have been in such strong positions as during the past week. Copper prices advanced from 18.00c, Connecticut, to 19.50c, a jump without parallel, except for war years. The strength in lead was not so well reflected in prices because of the unsympathetic market in London.

Tremendous demand for both metals has come from automobile and electric power industries.

Brass and copper product mills are turning out the largest tonnage in history. Prices of products have kept pace with the cost of base metals, and in some instances the differentials have been widened. Quotations were marked up Feb. 25, 27, 28 and March 4. Advances ranged from ¼ to ½ cent. Copper wire prices increased five times for a total rise of 1½ cents.

Copper—Domestic sales in the past week were not large, but coming on top of order books already crowded, pressure became extraordinary. Demand appeared larger than producers were able to handle. Some buying at first was for early positions, with the bulk for June shipment. As producers became nearly sold out for the first half of the year, they grew more reluctant to sell, but users appeared eager to buy despite higher prices. At times the market was in turmoil, and the price uncertain, but later the situation calmed down as users became better covered on their needs and producers were better able to reassure their customers.

Tin—The price has held remarkably steady in the face of an increase in the world visible supply to the largest in more than seven years. American deliveries last month were 6750 tons, not quite so large as expected. The total for January and February was 15,545 tons, the largest for the first two months of any year.

Zinc—Prime western continues to sell in a routine way at the unchanged price of 6.35c, East St. Louis. Shipments are large but supplies are plentiful. High grade is unchanged and going in big tonnages.

Lead—Producers are unusually well booked for March and April. The East St. Louis price has advanced almost to the American Smelting & Refining Co.'s price of 7.10c, and the New York open market has moved slightly higher.

Aluminum—Business is of large size and booked well ahead. Prices are firm and unchanged. Shipments grow.

Nickel—Shipments are very large, mostly on contracts, and prices are unchanged.—*Daily Metal Trade.*

C. M. Schwab Returns

New York, March 5.—Charles M. Schwab, president of the American Iron and Steel institute and chairman of the Bethlehem Steel Corp., returned today from his annual trip to the Riviera and Italy.

Mill Products

Base prices cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	23.75
Copper, hot rolled	29.12½
Lead, full sheets (cut ¼c more)	9.75
Zinc sheet (100-uound base)	$9.75
Zinc strip (100-pound base)	$8.75
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	28.62½
Copper	30.62½
RODS	
Yellow brass (high, full turnings)	21.50
Naval brass	23.50
WIRE	
Copper	21.37½
Yellow brass (high)	23.12½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	12.50 to 13.00
Chicago	13.75 to 14.25
Cleveland	14.00 to 14.50
HEAVY YELLOW BRASS	
Cleveland	10.00 to 10.50
ZINC	
New York	3.50
Cleveland	3.00 to 3.50
HEAVY COPPER AND WIRE	
New York	15.50 to 15.75
Boston	16.25 to 16.50
Chicago	16.00 to 16.50
Cleveland	16.00 to 16.50
RED BRASS BORINGS	
New York	11.50 to 11.75
YELLOW BRASS TUBING	
Cleveland	10.00 to 10.50
LIGHT COPPER	
New York	13.25 to 13.50
Chicago	13.75 to 14.25
Cleveland	14.00 to 14.54
LIGHT BRASS	
Boston	8.25 to 8.50
Chicago	9.50 to 10.00
Cleveland	8.00 to 8.50
ALUMINUM	
Clippings, Cleveland	17.50 to 18.00
Borings, Cleveland	8.00 to 8.50
Cast, Cleveland	12.50 to 12.75
Cast, Boston	10.50 to 11.00

Secondary Metals

Remelt aluminum No. 12	16.50 to 17.00
Brass ingot, 85-5-5-5	18.00 to 18.50

Coke By-Products

Light Oil Supplies Short of Demand—Benzols are Moving Well

New York, March 5.—Notwithstanding improved production, reflecting in part high operations in the iron and steel industry, light oil supplies generally are scarce. Spot toluol appears virtually out of the question, such heavy quantities as are now moving being almost entirely against monthly contracts, and distributors are having no little difficulty in meeting these requirements. Lacquer manufacturers are the large consumers.

Coke Oven By-Products

Per Gallon at Producers' Plant in Tank Lots

	Spot
Pure benzol	$0.23
90 per cent benzol	0.23
Toluol (nominal)	0.40
Solvent naphtha	0.30
Commercial xylol	0.30
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.30

Sulphate of ammonia is inactive. While time is approaching when fertilizer manufacturers should be beginning to round out their contract specifications, if they are going to do so to any extent at all, there has been little improvement to date. Meanwhile, ammonia for domestic account continues unchanged at nominally $2.30, delivered. The market on export shipments also is unchanged at $2.20, with little activity.

Flake and ball naphthalene are unchanged, with buying by the drug trade brisk.

Mercury Firm at $124

New York, March 5.—Quicksilver is firm, with spot supplies limited at $124 a flask, and futures obtainable at $123.

Warehouse

Distribution Well Sustained—Tonnage Is Diversified—Cold Finished Bars Up at New York—March Buying Expected to Be Heavy

ALTHOUGH weather conditions continue to hold up activity in some sections, general demands upon jobbers are well sustained. Buying is diversified, deferred mill deliveries continuing to send much business to the warehouses they otherwise would not get. Cold finished bars recently were advanced at New York.

New York—Leading jobbers advanced cold finished steel March 1, going to 3.60c on rounds and hexagons and to 4.10c on flats and squares. New strip steel extras have also been inaugurated. Shapes are active. The month starts briskly.

Pittsburgh—February warehouse sales were slightly less than January's, being restricted by cold weather. Sheet buying prospects are bright, together with other building materials. Prices are well observed. Quotations on seconds sometimes damage the sale of primes.

Buffalo—Sales gain as mills advance delivery dates. Distribution is good both as to materials and consumers. March sales are expected to surpass those of either January or February.

Cleveland—Jobber demand continues unabated. Mill deliveries are so much deferred that customers have to depend upon warehouses for their supplies. Prices are firm. Bars and sheets grow active.

Cincinnati—Activity witnessed an improvement, carrying along the bettered selling rate enjoyed in late February. Weather slows up outside work but fair size lots of material for inside jobs are bought. Prices continue steady.

St. Louis—January's and February's cold weather militated against the distribution of materials from stores. A trend toward improvement now is noted. Black and blue annealed sheets head the list of wanted products.

Philadelphia—Jobbers have advanced blue annealed sheets and cold finished bars $2 per ton. The latter now are 3.60c on rounds and hexagons and 4.10c on flats and squares, plus usual extras and quantity differentials. The new blue annealed price is 3.25c, delivered locally. All Philadelphia jobbers now quote Philadelphia base prices and quantity differentials on these products throughout eastern Pennsylvania, including Harrisburg, York, Williamsport, Scranton and Wilkes Barre, allowing freight to destination. Jobbers located at those points make similar concessions.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York††‡‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.15c
Cleveland	2.25c to 3.00c
Detroit	2.30c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl...	2.65c
Los Angeles lcl.	3.00c
New York	2.85c to 3.25c
Philadelphia	2.75c to 3.10c
Pittsburgh	2.75c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.25c to 3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡‡	3.25c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York‡‡	3.30c
Philadelphia*	2.70c
Phila., 3/16-in.**	2.90c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.45c
Boston, 3/16-in.	3.915c
Buffalo	3.50c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York‡‡	3.90c
Portland	3.75c
Philadelphia*†	3.25c
Pittsburgh**	3.20c
San Farncisco	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.34c

NO. 24 BLACK SHEETS

Baltimore	3.25c to 4.00c
Boston	4.85c
Buffalo	4.20c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.60c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York	3.90c to 4.00c
Philadelphia*†	4.00c
Pittsburgh**	3.80c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.10c
St. Paul	3.95c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore	4.30c to 4.50c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.65c
Cincinnati	4.75c
Cleveland	4.45c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.30c
Los Angeles	5.30c
New York	4.75c
Philadelphia*†	4.75c
Pittsburgh**	4.55c
Portland	5.50c
San Francisco	5.30c
Seattle	5.50c
St. Louis	4.95c
St. Paul	4.90c
Tulsa	5.10c to 5.35c

BANDS

Baltimore	3.85c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chicago	3.20c
Cincinnati	3.35c to 3.50c
Cleveland	3.25c to 3.65c
Detroit, ⅜-in. and lighter	3.30c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York‡‡	3.75c
Philadelphia*	3.15c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York‡‡	4.25c
Philadelphia*	3.40c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, hexagons,	Flats, squares
Baltimore (c)	3.35c	3.85c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.60c	4.10c
Philadelphia*	3.60c	4.00c
Pittsburgh	3.60c	4.10c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.25c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.00c
Iron bars, rounds	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. **25 or more sheets. *†50 or more bundles.

Pacific Coast

Bridge Tonnage Let Involves 23,340 Tons—Weather Aids Buying

LETTING of steel for the Carquinez straits bridge by the Southern Pacific Co. forms the largest tonnage the Pacific coast has seen in one project. The United States Steel Products Co. received the steel, much of which is of special analysis. Other business is better as weather improves. Prices are advanced on some descriptions of steel. Scrap is scarce.

San Francisco, March 2.—(*By Air Mail*)—Important lettings on the Pacific Coast include 21,840 tons of structural steel for the Carquinez straits bridge by the Southern Pacific Co., to the United States Steel Products Co., the contract for the foundations, involving 1500 tons of concrete bars to Siems, Helmers & Shaffner Inc., St. Paul; 9000 tons of plates and shapes for two gas holders for the Pacific Gas & Electric Co., San Francisco; close to 2500 tons of concrete bars for various projects and over 2200 tons of cast iron pipe. Considerable new work is in sight. The price structure is becoming firmer and less tendency to shade prevailing prices is noted.

Pig Iron and Coke

Demand for both foundry pig iron and coke continues to be confined to relatively unimportant tonnages. Foundry operations have shown improvement of late in the Los Angeles district, due to the increase in oil well activity in that portion of the state. Quotations remain the same as listed last week.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	24.00 to 25.00

*C.i.f. duty paid.

Bars, Plates and Shapes

Numerous concrete bar lettings were placed during the week and totaled 3921 tons. Among the larger lots booked were 400 tons for a plant in Los Angeles, and 275 tons for a warehouse in Oakland and 250 tons for an apartment in Seattle, taken by Soule Steel Co. and Truscon Steel Co. Pending business calls for more than 5000 tons. Out-of-stock distributors both in the Los Angeles and San Francisco districts continue to quote from 2.20c to 2.30c base on carload lots and as high as 2.60c on less than carload lots.

Plate business placed this week was the second largest weekly total of the year, 9000 tons. The Pacific Gas & Electric Co. awarded one 10,000,000-cubic foot gas holder for San Francisco to Stacey Bros. Gas Construction Co., Cincinnati, involving 5000 tons and one 8,000,000-cubic foot holder for Oakland, requiring 4000 tons, to Bartlett & Hayward, Baltimore. Most pending business is confined to small lots. A 12 to 16-inch welded pipe line for Upland, Calif., which originally called for 120 tons of plates, went concrete pipe. Prices are firmer and new business is being quoted on at 2.35c c.i.f.

Structural steel shape awards this week aggregated 24,000 tons, the largest item being the 21,840 tons for the Carquinez bridge. Of this tonnage 12,460 tons will be silicon steel, 2750 tons will be heat treated eyebars, 6300 tons carbon steel and the remainder machinery. The lift span will be 328 feet long, with clearance of 135 feet. Its weight will be 1700 tons. The Pacific Coast Engineering Co. secured 200 tons for an apartment in Oakland. Other awards included 614 tons for two bridges at Phoenix, placed with unknown fabricators. Pending business aggregates a fair sized tonnage. New inquiries of the week include 2000 tons for a smelter at Blackburn, Nev., and 3000 tons for the Ford Motor Co. plant at Long Beach, Calif. Plain domestic shapes continue to hold firm to 2.35c c.i.f., the level established some months ago.

Weather Helps Buying

Seattle, Feb. 27.—Business in the Pacific Northwest is improving. Spring work is opening and activity is increasing. While no large tonnages of steel were placed this week, several contracts are to be ready for the estimated figures within 30 days.

Effective March 20 the Pacific westbound conference, composed of steamship lines running from this coast to the Orient, announces that on iron and steel articles the contract rates will hereafter be $4.75 and noncontract rates will be $2 higher or $6.75, per gross ton. These rates do not apply to iron and steel tanks knocked down.

Bars, Plates and Shapes

Several projects involving large tonnages of reinforcing material are pending but no large contracts have been placed recently. Concrete bars are firm at 2.20c and merchant bars at 2.35c. Local mills report steady operations with recent orders mostly in small lots. Awards this week totaled 375 tons, of which Pacific Coast Steel Co. booked 150 tons for an office building at Forty-fifth and Brooklyn, Seattle, and 125 tons involved in the city hall at Everett. Northwest Steel Rolling Mills took 100 tons for the approaches to the Pasco-Kennewick bridge.

Forging Makers Organize Association

New York, March 5.—Manufacturers of heavy forgings and reheated products have organized the Forging Manufacturers' association, with headquarters at 5953 Grand Central Terminal building, New York. The association will compile statistical data on the forging industry, promote standardization of material, methods and products, seek to eliminate uneconomical methods and try to be beneficial to consumers and producers alike.

S. P. Howe, president, Camden Forge Co., Camden, N. J., is president of the association. Vice presidents include Robert F. Devine Jr., president, Erie Forge Co., Erie, Pa., and Stuart Hazelwood, vice president, Midvale Co., Philadelphia, C. W. Heppenstall, president, Heppenstall Forge & Knife Co., Pittsburgh, is treasurer, and George H. Weiler, Grand Central Terminal, New York, secretary-manager.

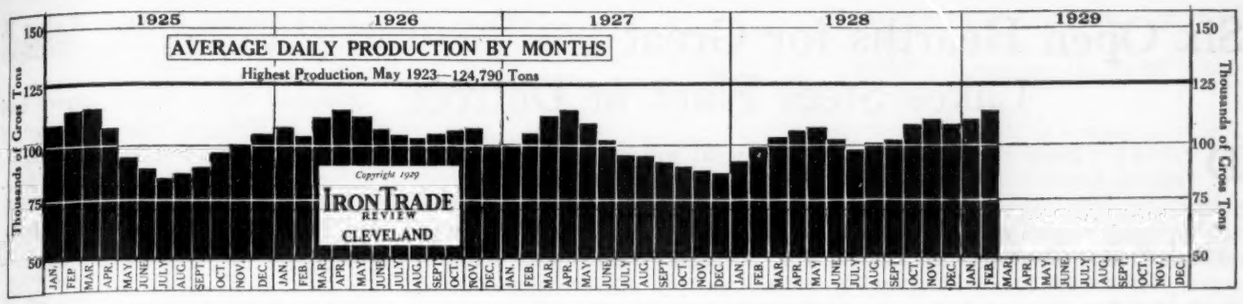
Member companies are the: Pittsburgh Forge Co., Mesta Machine Co., and Heppenstall Forge & Knife Co., Pittsburgh; Erie Forge Co., Erie, Pa.; Titusville Forge Co., Titusville, Pa.; National Forge & Ordnance Co., Irvine, Pa.; Midvale Co., Philadelphia; A. Finkl & Sons Co., Chicago; J. R. Johnson & Co. Inc., Richmond, Va.; Camden Forge Co., Camden, N. J.; American Locomotive Co., New York, and Cape Ann Anchor & Forge Co., Gloucester, Mass.

Sheet & Tube Net Higher For 1928

Earnings of the Youngstown Sheet & Tube Co. for 1928 amounted to $10,446,336 after all charges compared with $7,023,334 in 1927. The balance sheet shows current assets of $84,358,952 and current liabilities of $11,674,630.

Inventories of $46,812,624 were down about $6,000,000, while cash and marketable securities totaled $11,884,321. Funded debt was reduced to $73,500,000, and that will be reduced at least $124,000 more Dec. 31, when the balance of Iroquois Iron Co. 5 per cent bonds are retired. Last year, in addition to setting aside $128,000 Iroquois bonds, the company deposited $1,500,000 cash for retirement of $75,000,000 Youngstown Sheet & Tube first mortgage bonds.

"In 1928 we redeemed our 7 per cent preferred stock and issued 5½ per cent preferred shares in its place and now feel that we are well financed at low cost," President James A. Campbell states. "Our present issue of bonds at 5 per cent and our new preferred shares at 5½ per cent have resulted in a marked reduction in our annual fixed interest charge and preferred dividends requirements. Our inventories were reduced and our cash position improved during the year, and while we made large additions to our property account, we were not required to borrow money."



February Iron Rate Is Second Best

PIG iron production in February not only set a new high record for that month but also threatened the all-time record of March, 1925. With a daily rate of 114,833 gross tons, February took precedence over the previous February peak of 114,788 tons attained in 1925. The highest rate ever reported for any month was 115,207 tons in March, 1925, which last month threatened. The February rate compares with 110,736 tons in January, itself a record for that month, and 99,954 tons last February.

MONTHLY PRODUCTION

	1929	1928	1927	1926
Jan.	3,433,028	2,855,515	3,101,346	3,319,789
Feb.	3,215,322	2,898,668	2,940,604	2,923,850
Total 2 mos.	6,648,360	5,754,183	6,041,950	6,243,639
Mar.		3,199,175	3,482,107	3,458,171
April		3,181,975	3,424,377	3,438,805
May		3,292,790	3,391,067	3,477,820
June		3,082,340	3,089,726	3,232,478
July		3,072,711	2,954,625	3,224,663
Aug.		3,136,995	2,950,674	3,200,723
Sept.		3,063,593	2,782,500	3,163,269
Oct.		3,373,539	2,812,015	3,334,206
Nov.		3,304,656	2,661,863	3,237,992
Dec.		3,369,784	2,698,208	3,089,175
Total		37,831,741	36,289,112	39,100,941

February's total of pig iron was 3,215,332 tons, compared with 3,433,028 tons in January, the reduction being caused by the 3-day shorter month, and 2,898,668 tons last February. The total for the first two months of 1929 is 6,648,360 tons compared with 5,754,183 tons in the similar period of 1928, and 6,041,950 tons in the like period of 1927. At the rate pig iron was being produced in February, a yearly total of 41,914,045 tons is indicated, which would exceed even the 40,025,850 tons of 1923.

At the close of February, 208 stacks were active, compared with 202 at the close of January and 198 at the close of December. Three merchant stacks were blown in and one was dropped; 6 steel works stacks were lighted, and 2 blown out. With the Carnegie Steel Co. dismantling its 2 Bellaire stacks, the available number of stacks is 326.

February production included 659,785 tons of merchant iron, 2,555,547 tons of non-merchant and 34,419 tons of spiegeleisen and ferromanganese. Again on account of the short month, all three divisions show a loss from January, but a marked gain over last February.

Changes in the lineup of merchant stacks in February included the lighting of one stack by the Republic Iron & Steel Co., New Jersey Zinc Co., and Woodward Iron Co., and the dropping of one by the Globe Iron Co. Additions to the steelworks active list included three by the Illinois Steel Co. and one each by the Carnegie Steel Co., Bethlehem Steel Co., and Jones & Laughlin Steel Corp. The Tennessee Coal, Iron & Railroad Co. and the Bethlehem company each took one stack out.

Rate of Operation

(Relation of Production to Capacity)

	1929†	1928†	1927*
Feb.	84.5	73.6	74.7
Jan.	81.5	67.8	71.2
Dec.	.....	80.2	61.8
Nov.	.....	81.1	63.0
Oct.	.....	79.3	64.5
Sept.	.....	75.2	65.9
Aug.	.....	74.4	67.6

***Based on coke pig iron capacity of 51,379,400 gross tons as of Dec. 31, 1926. †Based on capacity of 49,605,720 tons as of Dec. 31, 1927. Capacities computed by American Iron and Steel institute.**

AVERAGE DAILY PRODUCTION

	1929	1928	1927	1926	1925
Jan.	110,742	92,113	100,043	107,039	108,781
Feb.	114,833	99,954	105,021	104,423	114,788
Mar.		103,199	112,326	111,554	115,207
Apr.		106,066	114,146	114,627	107,041
May		106,219	109,388	112,187	94,642
June		102,745	102,991	107,749	89,301
July		99,120	95,311	104,021	85,976
Aug.		101,193	95,183	103,249	87,328
Sept.		102,120	92,750	105,442	90,862
Oct.		108,824	90,710	107,555	97,351
Nov.		110,155	88,728	107,933	100,775
Dec.		108,702	87,039	99,651	104,808
Ave.	112,684	103,365	99,422	107,126	99,645

DIVISIONS OF PRODUCTION

1928	Merchant	Non-merchant	Spiegel and ferro-manganese
Jan.	649,654	2,205,861	32,510
Feb.	579,298	2,319,370	27,376
Mar.	597,106	2,602,069	34,587
Apr.	586,045	2,595,930	33,599
May	596,664	2,696,126	38,466
June	589,127	2,493,213	38,628
July	584,611	2,488,100	42,230
Aug.	563,510	2,573,485	33,585
Sept.	580,344	2,483,249	31,170
Oct.	643,043	2,730,496	33,519
Nov.	632,869	2,671,787	38,811
Dec.	686,431	2,683,353	34,541
Total	7,288,702	30,543,039	419,022
1929			
Jan.	744,448	2,688,580	37,210
Feb.	659,785	2,555,547	34,419

FEBRUARY PIG IRON PRODUCTION

	No. in blast last day of month Feb.	Jan.	—Total tonnage made— Merchant	Nonmerchant	—Totals— February	January
Ohio	46	47	133,572	622,696	756,268	820,693
Pennsylvania	71	68	127,579	922,135	1,049,714	1,124,629
Alabama	18	17	121,543	99,923	221,466	251,321
New York	15	15	86,485	120,815	207,300	214,915
Illinois	20	18	123,941	215,206	339,147	340,934
Colorado	3	3				
Indiana	16	15				
Maryland	5	5	6,174	439,312	445,486	447,233
Virginia	1	1				
Wisconsin	0	0				
Kentucky	1	1				
Massachusetts	1	1				
Tennessee	1	1	21,449	65,074	86,523	109,671
Utah	1	1				
West Virginia	3	3				
Michigan	4	4				
Minnesota	2	2				
Missouri	0	0	31,823	43,186	75,009	86,422
New Jersey	0	0				
Texas	0	0				
Spiegel and ferro—all states	....	....	7,219	27,200	34,419	37,210
Total	208	202	659,785	2,555,547	3,215,332	3,433,028

Six Open Hearths for Great Lakes Steel Plant at Detroit

DETROIT, March 5.—Six open-hearth furnaces of 150 tons capacity each, with commensurate semi-finished steel capacity and hot and cold-rolled strip mills with an annual capacity of 400,000 tons will comprise the initial installation of the Great Lakes Steel Corp.

The corporation, as announced last week, has been organized by George R. Fink, chairman and president of the Michigan Steel Corp. It has acquired a 160-acre site on the Detroit river at Ecorse, just south of Detroit, within a mile of the two stacks of the Hanna Furnace Co., from which hot metal for the open hearths will be obtained.

Engineering work on the mills is being done by the companies which will supply the equipment. Plans for an early start on actual construction work are being rushed, and it is hoped to get production under way by the middle of 1930.

At the outset, at least, the semifinished steel capacity of the Great Lakes plant will not supply the sheet bar requirements of the Michigan Steel Corp., whose officials are interested in the Great Lakes venture. The Michigan Steel Corp., with 16 mills, produced 100,000 tons of full finished sheets in 1928 and contemplates an output of 150,000 tons this year.

The initial offering of 400,000 shares of no-par stock, at $50 per share, was rapidly oversubscribed. Plans for incorporation provide for 700,000 shares of common stock and 300,000 shares of preferred, at $50 per share. The 160 acres in the site have been obtained. Financing was effected by Mr. Fink at no cost. The Hanna company is reported to be heavily interested.

Officers of the Great Lakes Steel Corp. are: Chairman of the board and president, George R. Fink, now holding similar posts with the Michigan Steel Corp.; vice president and secretary, Elmer R. Milburn, secretary of the Michigan Steel Corp., and treasurer and assistant secretary, Lacey S. Brown, now treasurer of the Michigan Steel Corp.

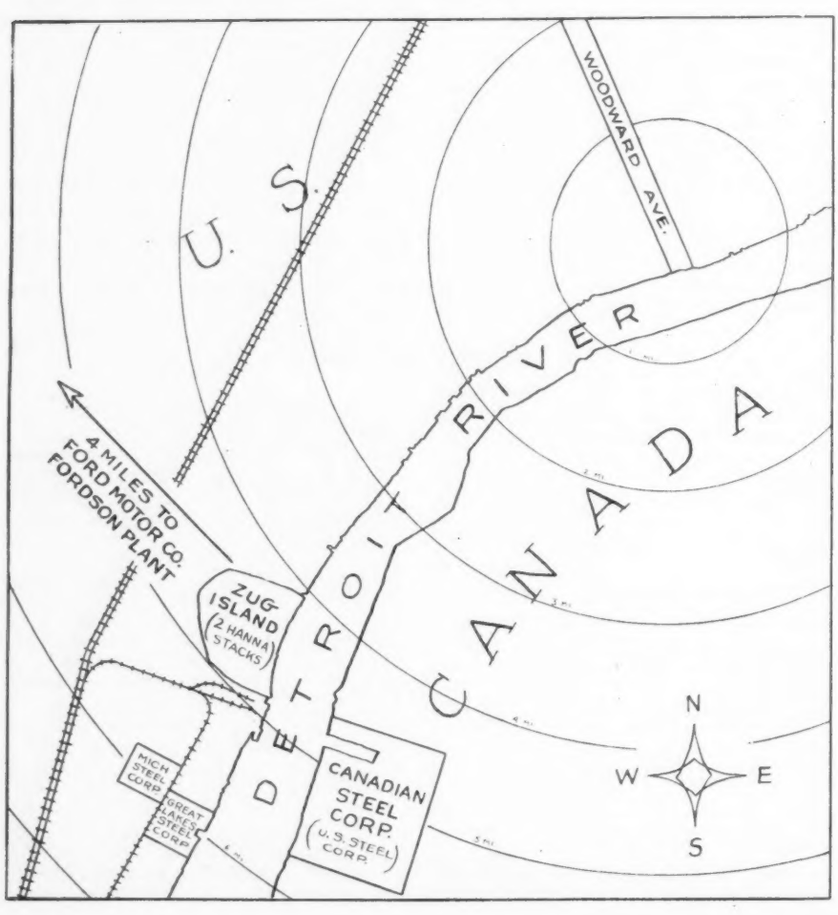
Directors include these three and Edward L. Wetstein, sales manager of the Michigan Steel Corp.; Charles A. Collins, president of the Hanna Furnace Co. and vice president of the M. A. Hanna Co.; Frank W. Blair, president of the Union Trust Co., Detroit; George W. Davison, New York, director of the Central Union Trust Co., New York, and identified with the Sloss-Sheffield Steel & Iron Co. and Union Carbide & Carbon Corp.; James N. Jarvie, New York, also identified with the Sloss-Sheffield company and Central Union Trust Co.; and Carlton M. Higbie, chairman of the Wilcox-Rich Co. and director of the Murray Corp. of America and the Reo Motor Car Co. All except Messrs. Collins, Davison and Jarvie are of Detroit.

At Monroe, Mich., 25 miles south of the site of the Great Lakes plant, the Newton Steel Co., Youngstown, O., next month will make a start on its new sheet mill. Arthur G. McKee & Co., Cleveland, have been awarded the contract for laying out the plant, including trackage, sewers, dock, equipment handling at dock, water supply and the preparatory and auxiliary portion of constructing the plant.

The Newton company has organized its own engineering corps to install rolling mill machinery of its own design. The plant, designed to roll full finished sheets, is expected to be in operation about Jan. 1, 1930, and to have an initial capacity of 30,000 tons monthly. Sheet bars will be shipped in from Lake Erie ports during the season of navigation.

Another new Detroit steel venture is the Detroit Alloy Steel Co., with offices and plant at the foot of Iron street, organized by interests identified with the Detroit Gray Iron Foundry Co. Its product is to be a line of alloy tool steels, chiefly for the automotive industry. Hugh Martin, president of the foundry company, is also president of the alloy steel company; Louis W. Schimmel is vice president and Harry H. Wyatt secretary-treasurer.

Site of New Detroit Steel Plant



Buffalo Operations High

Buffalo, March 5.—Steelworks operations continue large. There were 32 of 37 open hearths in the district in production this week. March operation of open hearths will be kept as close to capacity as operating repairs will permit. Many mills in larger steelworks are on double and some on triple turn. Operations are near 90 per cent, considering the district as a whole.

Subcommittees Begin Sifting Testimony and Revising Tariff

WASHINGTON, March 5.—Tariff revision hearings which began Jan. 7 before the ways and means committee of the house of representatives have just been concluded. More than 1100 witnesses were heard on the various schedules of the tariff.

Having outlined its general policy for the revision, the full committee is about to begin work through subcommittees. The subcommittee having charge of the metals schedule, No. 3, is composed of Representative Bacharach, of New Jersey, as chairman, and Representatives Henry W. Watson and Charles B. Timberlake. It is expected the first meeting of the various subcommittees will be held March 6.

Chairman Hawley of the ways and means committee has stated officially that the draft of the new bill will be ready for the house by April 20. He thinks that, if necessary, it can be completed a few days before.

At this time, President Hoover has not called the extra session of congress but it has been suggested to him that it be called to convene April 10. This will give the new congress time to organize and perhaps take up the agricultural relief bill before the tariff bill is ready for the house.

There are still two distinct classes of thought as to what will be done on the tariff. It is stated on all sides that adequate protecion will be given to all agricultural products, but there seems to be an opinion in many quarters that relief given to any other industry will be "few and far between." On the other hand, some say that some of the major industries are not going to stand by and see the agricultural interests get everyhing and they get nothing.

It is a well-known fact that President Hoover does not care to raise any tariff wall at this stage of the game and this thought is certainly seconded by the speaker of the house, Nicholas Longworth, who, if he had had his way, would not have revised the tariff at all this time. He has felt it would upset the business interests of the country.

However, with one-third of the senate coming in as new members there may be some new opinion in that body upon which the administration is not now counting. This holds good also for the house, which will contain many new faces when the session begins.

The tariff bill as it reaches the house from the ways and means committee and the way in which it will finally be signed by the President and become law will not be anything alike. That is always so, and the present bill will be no exception.

It is reported here that industries will be given their final say March 9, which has been set as a dead line by the ways and means committee in which to file any final briefs on the respective commodities. When the subcommittees get into action, representatives of the industries will rarely be able to have anything to say unless they are asked for some additional information or to explain some technical point. This is indicated by recent utterances from the chairman, Mr. Hawley.

Representative Bacharach of New Jersey, chairman of the metals schedule, discussing the tariff situation said today:

"I see no need for a general revision of the Fordney-McCumber Tariff act. The Republican party went before the people last November and asked for re-election on the strength of the protection granted to industry and labor under that act. We admitted that there should be some readjustment of rates to take care of agriculture and those industries which were not adequately provided for in the 1922 act. From the evidence which has been presented to our Committee it would appear that the Fordney-McCumber act has worked out very satisfactorily and that there are only a comparatively few holes that need to be 'plugged up.'

"I think there is little sympathy in the congress for the adoption of American valuation at this time. Many who originally were for American valuation, both in congress and outside, are not now in favor of it."

Cruisers Voted by Congress To Take 6000 Tons of Steel Apiece

WASHINGTON, March 5.—Some preliminary details have been worked out by iron and steel experts in connection with the tonnage needed for the 15 light cruisers and one aircraft carrier which were authorized by the session of congress, just adjourned, and for which some funds are now available.

The cruiser bill, as finally signed by President Coolidge on Feb. 13, provided "that the President of the United States is hereby authorized to undertake prior to July 1, 1931, the construction of fifteen light cruisers and one aircraft carrier."

Five light cruisers are to be begun in each fiscal year ending June 30 of 1929, 1930 and 1931, and they are to cost, including armor and armament, not to exceed $17,000,000 each.

It is provided that the first cruiser shall be built in a government yard and that every other boat shall be built in government yards, so that eight will be built in government yards and seven in private yards.

Best information available here at this time is that the ships will be 10,000 tons each and that they will be constructed very nearly like the last cruisers built, except that they will be 10 feet longer.

Calculations for tonnage of steel in these ships have been made on the basis of the last cruisers constructed. They will run, it is estimated, about 6000 tons of steel each, of which 2000 tons will be specially treated.

In other words, according to present unofficial information, plates, shapes and bars will total some 4000 tons for each ship while the specially treated steel will be some 2000 tons. The plates, it is estimated, will total some 2500 tons for each ship while the shapes will amount to 1000 tons and the bars will total perhaps 500 tons.

Congress has further provided, in connection with the construction of these cruisers, that the secretary of the navy shall submit each year to the bureau of the budget estimates for the construction of these vessels.

It is further provided that:

"One aircraft carrier prior to June 30, 1930, to cost, including armor and armament, not to exceed $19,000,000; Provided, That if the construction of any vessel herein authorized to be undertaken in the fiscal year ending June 30, 1929, or 1930, is not undertaken in that fiscal year, such construction may be undertaken in the next succeeding fiscal year; and provided further, That the first and each succeeding alternate cruiser upon which work is undertaken, together with the main engines, armor, and armament, for such eight cruisers, the construction and manufacture, of which is authorized in this Act, shall be constructed or manufactured in the government navy yards, naval gun factories, naval ordnance plants, or arsenals of the United States, except such material or parts as are not customarily manufactured in such government plants."

January Exports Near Record

Totaling 274,296 Tons, Iron and Steel Shipments Are Highest, Excepting August, 1928, Since February, 1921—Imports Drop Slightly, Totaling 54,793 Tons—Scrap and Tin Plate Exports Are Substantial

ATTAINING a total of 274,296 tons, January exports of iron and steel products from the United States were the highest, with the exception of August, 1928, since February, 1921. The total exceeded December, 1928, by 52,486 tons, according to the iron and steel division of the department of commerce, Washington. The average daily export movement in January was 8881 tons, compared with 7155 tons in December.

Imports lost slightly, totaling 54,793 tons in January, compared with 55,199 tons in December, and 58,635 tons a year ago. Average daily import movement was 1768 tons, slightly under December.

The gain in exports was reflected in 30 of the 42 classifications into which the outgoing trade is divided, only 12 showing lower shipments. Principal increases registered in January were made by scrap, tin plate, casing and oil line pipe and steel bars. Pig iron and plates made the only large losses.

With the import trade divided into 27 groups, 19 showed decreases in January. Principal losses were in wire rods, "other pipe and tubes," and cast iron pipe. Pig iron made the only gain of importance.

North and Central America and West Indies received the largest portion of exports in January, with Canada holding first place as individual purchaser, taking a total of 90,453 tons. Japan was the second largest purchaser, receiving 37,515 tons compared with 47,320 tons in the preceding month.

Argentina received 12,260 tons of iron and steel products in January, making a comfortable increase over December.

Scrap was the principal product exported in point of tonnage, with Japan receiving the most, 15,376 tons. Tin plate was second, Japan and Canada taking the greatest amount of tonnage. Steel bar shipments went mainly to Canada, Japan and Spain, the remainder of the total of 22,406 tons divided among eight countries. Central America, Chile and Japan received the greatest amount of steel rail shipments, while Canada took 14,369 tons of plates out of the entire total of 16,302 tons exported.

Pig iron was the principal import, most of it coming from British India. Structural shapes imports originated largely in Belgium and Germany. Nearly all scrap receipts came from Canada. Sweden shipped more steel bars than any other country.

Canada, with 10,911 tons, shipped

IMPORTS AND EXPORTS

Gross Tons

	—1929—		—1928—	
	Imports	Exports	Imports	Exports
Jan.	54,793	274,296	58,635	205,766
Feb.	.....	.....	47,628	185,915
March	.....	.....	74,128	221,935
April	.....	.....	71,579	215,184
May	.....	.....	72,106	267,890
June	.....	.....	65,819	262,052
July	.....	.....	47,830	253,336
Aug.	.....	.....	69,914	287,297
Sept.	.....	.....	57,782	228,056
Oct.	.....	.....	63,880	256,870
Nov.	.....	.....	67,103	256,886
Dec.	.....	.....	55,199	221,810
Total	.....	.....	782,694	2,862,997

ORIGIN OF PIG IRON IMPORTS

Gross Tons

From:	Jan.	Dec.
Belgium	151	.....
Mexico	33	37
Germany	3	300
Netherlands	3,091	2,323
Norway	51	100
Sweden	50	199
United Kingdom	5,250	2,190
Canada	164	352
Brtish India	7,315	5,324
Totals	16,108	10,825

ORIGIN OF IRON ORE IMPORTS

Gross Tons

From:	Jan.	Dec.
Germany	545	.....
Spain	11,388	255
Canada	122	350
Cuba	39,000	48,000
Chile	83,451	113,000
Algeria and Tunis	25,100	42,230
Australia	5,160	.....
Brazil	.....	4
Sweden	6,648	.....
British India	1,494	.....
Egypt	7,400	.....
Totals	180,308	204,799

ORIGIN OF MANGANESE IMPORTS

Gross Tons

From:	Jan.	Dec.
Germany	9	.....
Greece	12	.....
Brazil	13,763	12,655
British India	1,560	3,640
Soviet Russia in Europe	.....	3,548
United Kingdom	.....	20
Java	.....	501
Totals	15,344	20,365

ORIGIN OF FERROMANGANESE IMPORTS

(Concentrates)

Gross Tons

From:	Jan.	Dec.
Italy	131	74
Norway	2,204	.....
United Kingdom	855	1,625
Canada	2,312	1,516
France	.....	39
Germany	.....	23
Totals	5,502	3,277

ORIGIN OF IMPORTS

Gross Tons

From:	Steel bars	Cast iron pipe	Steel scrap	Ingots, blooms, etc.
Austria	47	.....	.....	.....
France	652	2,618	4	716
Belgium	921	.....	.....	746
Germany	350	101	290	29
Sweden	1,085	.....	.....	135
United Kingdom	56	.....	111	90
Canada	6	41	6,780	1
Czechoslovakia	14	.....	.....	.....
Norway	3	.....	.....	.....
Italy	.....	.....	22	.....
Totals	3,134	2,760	7,207	1,717

IMPORTS OF IRON AND STEEL

Gross Tons

Item:	Jan., 1929	Dec., 1928	Jan., 1928
Pig iron	16,108	10,825	11,127
Ferromanganese and alloys (1)	5,502	3,277	5,184
Ferrosilicon (2)	446	946	405
Ferrochrome (3)	28	48	31
Scrap	7,207	6,548	4,674
Steel ingots, blooms, billets, etc.	1,717	1,218	1,319
Steel bars	3,134	3,224	7,876
Iron bars	239	109	149
Wire rods	1,183	4,328	1,079
Hoops, bands, and scrolls	1,182	1,482	1,918
Boiler and other plate	73	107	68
Sheets, skelp and sawplate	827	1,264	4,292
Tin plate	41	51	39
Structural shapes	9,470	10,100	11,080
Rails and splice bars	71	684	3,150
Cast iron pipe	2,760	3,866	2,778
Other pipe and tubes	2,659	4,067	2,046
Barbed wire	285	831	350
Round iron and steel wire	602	443	304
Steel telegraph and telephone wire	.....	.....	36
Flat wire and strip steel	149	256	135
Wire rope and strand	133	157	94
Other wire	41	90	41
Nails, tacks, and staples	708	799	181
Bolts, nuts, rivets, and washers	18	51	25
Castings and forgings	210	428	499
Total	54,793	55,199	58,635

(1) Manganese content.
(2) Silicon content.
(3) Chromium content.

IMPORTS BY COUNTRIES OF ORIGIN

Gross Tons

	January 1929	December 1928	January 1928
Austria	57	14	.....
Belgium	9,339	12,505	15,322
Czechoslovakia	645	166	125
France	5,793	4,788	6,022
Germany	5,178	11,324	10,211
Italy	153	112	.....
Netherlands	3,311	2,648	1,720
Norway	2,293	114	1,209
Sweden	2,292	3,001	1,228
Switzerland	1	36	.....
United Kingdom	7,471	5,182	8,561
Canada	10,911	9,944	4,997
Mexico	33	37	29
British India	7,315	5,324	5,634
China	1	.....	.....
Honduras	.....	2	.....
British Malaya	.....	1	.....
Japan	.....	1	27
Jamaica	.....	.....	628
Hong Kong	.....	.....	2
Totals	54,793	55,199	58,635

the largest amount of imports, with Belgium second with 9339 tons. United Kingdom, France and Germany followed closely behind Belgium. Germany in December shipped 11,324 tons to the United States and in January sent only 5178 tons.

EXPORTS OF IRON AND STEEL

Gross Tons

Item:	Jan., 1929	Dec., 1928	Jan., 1928
Pig iron, not including ferroalloys	3,769	8,414	4,403
Ferromanganese and spiegeleisen	168	582	1
Scrap	50,753	36,308	29,800
Ingots, blooms, etc.	1,901	1,626	809
Skelp, iron and steel	2,819	3,886	4,865
Iron bars	1,311	1,187	395
Steel bars	22,406	14,937	8,093
Alloy steel bars	1,785	707	521
Wire rods	4,411	2,830	3,970
Plates	17,385	18,736	10,009
Galvanized sheets	16,423	13,759	11,076
Black steel sheets	13,465	12,759	17,552
Black iron sheets	1,003	1,454	1,036
Hoops, bands and strip steel	6,891	5,612	3,319
Tin plate, terne plate, etc.	26,387	17,027	19,668
Structural shapes, plain materials	17,259	17,086	9,812
Structural shapes, fabricated	10,742	9,549	6,560
Metal lath	574	419	310
Steel rails	17,883	12,114	22,714
Rail fastenings, switches, frogs, etc.	2,627	3,240	9,370
Boiler tubes	1,524	1,392	1,147
Casing and oil line pipe	16,330	7,871	9,854
Black and galvanized welded pipe	10,344	7,123	10,090
Malleable iron screwed fittings	1,135	959	696
Cast iron screwed pipe fittings	722	718	478
Cast iron pressure pipe and fittings	513	923	1,568
Cast iron soil pipe and fittings	1,022	1,172	817
Plain wire	3,845	3,522	3,775
Barbed wire and woven wire fencing	6,529	5,371	5,314
Wire cloth and screening	152	203	185
Wire rope	620	610	485
Insulated wire and cable	163	45	54
Other wire and manufactures of	926	700	701
Wire nails	1,498	1,007	1,477
Nails other than wire	836	804	664
Tacks	58	75	72
Horseshoes	21	48	55
Bolts, nuts, rivets, except track	1,411	857	867
Car wheels and axles	2,818	2,569	932
Iron castings	1,181	1,695	1,065
Steel castings	1,444	1,129	707
Forgings	1,242	786	394
Total	274,296	221,810	205,680

DESTINATION OF EXPORTS

Gross Tons

	January 1929	January 1928
N. and Cent. America, and West Indies	120,136	78,422
Canada and Newfoundland	90,453	61,611
Cuba	6,888	3,892
Mexico	7,930	4,874
Guatemala	528	3,284
Honduras	892	333
Panama	2,239	448
Salvador	1,689	217
British W. Indies	5,256	541
Other W. Indies	3,600	2,619
Other Cent. America	661	623
South America	45,260	39,038
Argentina	12,260	10,066
Brazil	5,427	9,018
Chile	5,678	5,810
Colombia	3,687	4,656
Peru	3,836	1,261
Uruguay	1,238	659
Venezuela	12,684	7,345
Other S. America	450	223
Europe	36,345	9,294
Belgium	60	519
France	1,244	237
Greece	65	38
Italy	14,799	848
Netherlands	91	312
Rumania	247	385
Sov. Rus. in Europe	70	1,103
United Kingdom	5,535	4,705
Other Europe	14,234	1,147
Far East	70,623	77,861
British Malaya	1,084	504
China	8,910	14,857
Dutch East Indies	8,149	2,190
India and Ceylon	1,286	1,193
Japan and Chosen	37,515	47,320
Kwantung	568	1,435
Philippine Islands	9,112	7,390
Australia	1,851	2,559
New Zealand	768	180
Other Asia and Far Eastern markets	1,380	233
Africa	1,932	1,045
British S. Africa (Union of)	134	841
Egypt	1,746	66
Mozambique	22	46
Other Africa	30	92

DESTINATION OF JANUARY IRON AND STEEL EXPORTS

Gross Tons

	Rails	Galvanized sheets	Plates not fabricated	Tin, terne plate	Steel sheets black	Barbed wire	Steel bars	Steel scrap
Argentina	.....	1,126	86	3,393	.....	1,567	.....	.....
Australia	.....	494	1	.....	217	20	.....	.....
Brazil	1,010	1,026	88	413	.....	1,155	383	.....
British India	.....	193	.....	.....	.....	.....	.....	.....
British S. Africa	.....	10	.....	.....	.....	.....	.....	.....
Canada	993	2,587	14,369	3,831	7,270	89	10,806	8,939
Central America	497	660	232	.....	44	297	401	.....
Chile	2,373	57	67	995	.....	.....	.....	.....
China	2,515	188	.....	3,139	.....	.....	958	770
Colombia	391	862	3	32	.....	551	.....	.....
Cuba	56	623	138	775	.....	226	723	.....
Dutch E. Indies	.....	1,598	.....	.....	.....	.....	.....	.....
Europe	.....	.....	12	.....	1,773	.....	13	.....
Other Europe	.....	409	.....	164	.....	.....	.....	.....
Germany	.....	.....	.....	.....	.....	.....	.....	2,732
Italy	970	.....	.....	380	.....	.....	.....	12,472
Japan	1,300	103	.....	6,202	2,070	.....	4,279	15,376
Java and Madura	.....	.....	.....	35	.....	.....	.....	.....
Mexico	334	754	103	864	382	860	125	139
Norway	.....	78	.....	.....	.....	.....	.....	.....
Peru	156	.....	5	1,357	193	.....	274	.....
Philippine Islands	12	3,446	.....	.....	376	713	831	.....
Poland	.....	.....	.....	.....	.....	.....	.....	10,029
Spain	304	.....	.....	.....	.....	.....	.....	.....
United Kingdom	900	.....	.....	.....	90	.....	2,441	113
Uruguay	.....	.....	.....	1,036	.....	.....	.....	.....
Venezuela	71	.....	.....	1,038	.....	.....	.....	.....
	17,883	16,423	16,302	26,387	13,465	6,144	22,406	50,753

Oil Burner Association Announces Meeting

Arrangements are being completed for the sixth annual convention of the American Oil Burner association to be held in Hotel Pennsylvania, New York, April 9-11. Over 2000 delegates representing the oil heating and allied industries in United States and Canada are expected to be in attendance at the meeting and exposition which will be held in conjunction with the convention.

January Iron Output Is Best in 10 Years

Toronto, Ont., March 5.—When Canadian blast furnaces in January produced 87,764 long tons of pig iron they exceeded any January since 1919 but dropped 15 per cent below the 103,450 tons produced in December. In January, 1928, production was 65,006 tons.

January's output included 55,183 tons of basic, 32,056 tons of foundry and 525 tons of malleable iron.

Production of ferroalloys in January also set a new high, at 6475 long tons, compared with 5160 tons in December and 4619 tons in January a year ago.

Output of steel ingots and direct steel castings in January at 116,260 long tons fell just short of the previous record of 117,000 tons in January, 1917. The month showed a gain of 12 per cent over the 103,054 tons of December and 38 per cent over the 84,285 tons of last January.

Exports of Metalworking Machinery

(In number except where otherwise specified)

	January 1929	January 1928	Six months ending December 1928	Six months ending December 1927
Engine lathes	72	67	380	422
Turret lathes	46	26	205	184
Other lathes	63	56	490	231
Vertical boring mills and chucking machines	36	7	57	71
Thread-cutting and automatic screw machines	107	74	378	495
Knee and column type milling machines	41	30	146	132
Other milling machines	65	81	310	295
Gear-cutting machines	33	31	212	224
Vertical drilling machines	36	41	245	211
Radial drilling machines	10	18	52	54
Other drilling machines	287	43	814	511
Planers and shapers	51	40	172	195
External cylindrical grinding machines	143	75	475	371
Internal grinding machines	45	44	212	269
Tool grinding, cutter, grinding, and universal grinding machines	85	49	402	282
Pneumatic portable tools	1,817	1,577	11,058	10,706
Chucks for machine tools	2,432	317	12,269	6,921

Industrial Men in the Day's News

Robert Patterson Lamont, United States Secretary of Commerce

Photo by Blank-Stoller Inc.

BUSINESS man and engineer, he makes a fitting follow-up to the man who now becomes United States' Engineer-President.

A 37-YEAR industrial career now is crowned with the secretaryship of commerce, one of the most important berths in the President's cabinet.

MAJOR in the national army in 1918, he was made colonel in the procurement division, ordnance department, Washington, and congress awarded him a distinguished service medal.

FOR his secretary of commerce, a cabinet post he himself elevated from mediocrity to paramount importance to business and industry, President Herbert Hoover has turned to the metalworking industry. He has chosen Robert Patterson Lamont, of Chicago, president of the American Steel Foundries and the recently-formed General Steel Castings Corp. and long identified with many other important interests in the metalworking industry.

Personal contact of President Hoover with Mr. Lamont when both were engaged in pulling Europe out of its economic morass, while the former secretary of commerce was engaged in building up a real department at Washington, and during relief work following the Mississippi river flood disaster ripened a personal acquaintanceship into business comradeship. It is conceivable that President Hoover, desirous of maintaining the department of commerce on the high plane of the past eight years, sifted all available material diligently before making his choice.

Mr. Lamont, who was commissioned a major in the National army in 1918 and became chief of the procurement division, ordnance department, in Washington wherein he served from October, 1918, until February, 1919, with the rank of colonel, was born in Detroit, Dec. 1, 1867. He was graduated in engineering from the University of Michigan, Ann Arbor, Mich., in 1891. He then located in Chicago and his initial business connection was as secretary and engineer of Schailler & Schinglen, contractors. In that year and in 1892 he did considerable engineering work in connection with the World's Fair in Chicago. He later became first vice president of the Simplex Railway Appliance Co., in which position he remained eight years until he became first vice president of the American Steel Foundries in 1905. He served in that office until 1923, then being made president.

Other business connections have been formed, and he is associated with possibly a score of industrial and civic organizations. He is chairman of the board of the Griffin Wheel Co., and also is on the directorates of the First National bank, Morris Plan bank, Montgomery Ward & Co., Armour & Co., Illinois Bell Telephone Co., International Harvester Co., and the Lakes-to-Gulf Waterway association, all of Chicago; the Globe Steel Tubes Co., Milwaukee; American Radiator Co., New York; and the Damascus Brake Beam Co., Cleveland. When the American Steel Foundries, the American Locomotive Co., and the Baldwin Locomotive Works set about building a steel castings plant near Philadelphia they chose Mr. Lamont as president as noted two weeks ago.

Mr. Lamont is a trustee of the University of Chicago, having been chairman of its endowment campaign, of the Chicago Art institute and the Rosenwald Industrial museum, Chicago. He always has been active in scientific research in different fields, being chiefly instrumental in establishing the astronomical observatory of the University of Michigan in South Africa.

For his services during the World war, Mr Lamont was awarded a distinguished service medal by congress, the citation reading; "He rendered material assistance to the nation's industry in adjusting equitably outstanding contracts with full justice to employers and employes alike."

Men of the Industry

LAMAR S. PERGORY, vice president and secretary of the Sivyer Steel Casting Co., Milwaukee, was named general manager at the Feb. 21 meeting of the board of directors. He has been affiliated in various capacities with the Sivyer company since its inception. Mr. Peregoy also is vice president of the Interstate Drop Forge Co. and a director of the Federal Malleable Co., both at Milwaukee and affiliated with the Sivyer Steel company.

Martin A. Fladoes, sales manager of the Sivyer Steel Casting Co., was recently added to the board of directors. He has been connected with the company's sales engineering department for about eight years.

* * *

J. T. Webster and A. E. Gibson were added to the board at the recent annual meeting of the stockholders of the Wellman-Seaver-Morgan Co., Cleveland.

* * *

George L. Gaylord, president of the Westfield Grinding Wheel Co., Westfield, Mass., recently was elected president of the chamber of commerce there.

* * *

H. B. Guest, formerly affiliated with the American Cast Iron Pipe Co., was recently transferred to its Chicago office to succeed F. W. McMeans, whose headquarters now are at Detroit.

* * *

Carl S. Neumann recently was elected president of the Union Mfg. Co., New Britain, Conn., to succeed Albert F. Corbin, who has resigned after serving in that office 21 years.

* * *

C. A. Reed, formerly Pittsburgh district sales manager for the Erie City Iron Works, Erie, Pa., has been appointed chief combustion engineer of the Pittsburgh Coal Co., Pittsburgh, and will be connected with the sales department in that city.

* * *

Carl F. Schory recently resigned as secretary of the contest committee of the National Aeronautics association, Washington, to become identified with the Hamilton Aero Mfg. Co., Milwaukee, manufacturer of aircraft propellors.

* * *

Ray S. Rider, for 30 years president and general manager of the Canadian Steel & Wire Co. Ltd., Hamilton, Ont., was recently elected vice president of the Canadian Steel Corp. Ltd., Ojibway, Ont., with which his former company was recently merged.

* * *

James A. Muir, formerly sales enginneer for the Thomson Electric Welding Co., Lynn, Mass., was recently appointed assistant to President A. C. Taylor of the Taylor-Winfield Corp., Warren, O., manufacturer of electric welding machines. Mr. Muir has been identified with welding for 25 years, having been one of the

LAMAR S. PEREGOY

founders of the Toledo Electric Welder Co., absorbed by the Thomson company. This will permit Mr. Taylor to give more attention to engineering and development.

* * *

Everett L. Keig, automobile salesman at Rockford, Ill., for the past five years, has been appointed representative in Northern Illinois and Southern Wisconsin territory of the Chicago Steel Service Co., 3912 South Ashland avenue, Chicago, sheet steel jobber.

* * *

H. W. Luett, for 10 years general sales manager of the Wood Bros. Thresher Co., Des Moines, Iowa, has resigned to accept a similar position with the Belle City Mfg. Co., Racine, Wis., agricultural implements and machinery. R. C. Brewsaugh has been promoted to be assistant to Mr. Luett, and W. J. Tostevin, for 20 years advertising manager of the Belle City company, has been placed in charge of the foundry division.

* * *

William B. Prescott, formerly manager of the raw materials department of the Youngstown Sheet & Tube Co., has been placed in charge of domestic coal sales of the Koppers Coal Co., Pittsburgh. Mr. Prescott previously supervised purchases of coal for the Youngstown company.

* * *

George A. Whalon, manufacturers' agent for several years in Japan, representing American machine tool, small tool and machine shop equipment builders, has returned to the United States to become Detroit territory salesman for the National Acme Co., Cleveland.

* * *

J. E. Watson, vice president and general manager of the Elliott Co., Jeanette, Pa., has also been made secretary and director of the Pittsburgh Die Casting Corp., Pittsburgh.

J. I. Thompson, vice president of the Koppers Co., Pittsburgh, has been made a director of the Pittsburgh Die Casting Corp.

* * *

Harry Dobson has been appointed manager of the new branch at Windsor, Ont., established by the Arthur Jackson Machine Tool Co., Toronto, Ont. He formerly was superintendent of the London, Ont., and Montreal, Que., branches of the Ford Motor Co. of Canada but more recently has been affiliated with the White Motor Co. and the Chrysler Corp.

* * *

Isaac J. Pritchard has been appointed acting superintendent of the Utica, N. Y., plant of the Richardson & Boynton Co., 260 Fifth avenue, New York. He succeeds the late Michael D. Waldron, whose death was noted in IRON TRADE REVIEW of Feb. 21. The Utica plant until Sept. 1, 1927 was operated as the Utica Heater Co., and from that date until Jan. 1, 1928, it was owned and operated by the National Radiator Corp. Since Jan. 1, 1928, it has been owned and operated by the Richardson & Boynton Co.

* * *

G. E. Dale, formerly vice president of the Baker Steel Co., Philadelphia, recently purchased by the Kalman Steel Co., is now general manager in charge of the plant for the latter interest. He was Philadelphia sales manager for the Concrete Steel Co.

for several years prior to becoming identified with the Baker company.

* * *

W. J. Lyman, formerly sales manager of the Birmingham Machine & Foundry Co., has been appointed southern sales manager for the National Cast Iron Pipe Co., Birmingham, Ala.

* * *

George Jamieson, president, A. H. Fox & Co., Seattle, has been made temporary president of an association of equipment dealers formed in that city.

* * *

T. M. Simpson, secretary of the Continental Motors Corp., Muskegon, Mich., recently was elected president of the Muskegon Employers' association, to succeed Eric Zachau, who has removed to Chicago.

* * *

E. R. Leeder, formerly assistant to the manager, has been appointed to succeed C. C. Cross as factory manager of the Fisher Body Corp., Lansing, Mich. Mr. Cross was plant manager for six years.

* * *

W. M. Weir has been re-elected president of the Canada Foundries & Forgings Ltd., Brockville, Ont. George P. Graham has been re-elected vice president and E. S. Day reappointed secretary-treasurer.

* * *

C. E. Chapman, manager of the farm equipment division, Columbian Steel Tank Co., Kansas City, Mo., was recently elected president of the Steel Tank Manufacturers' association, at its annual convention in Minneapolis.

* * *

Lloyd B. Jones, formerly assistant to the purchasing agent of the Bethlehem Fabricators Inc., Bethlehem, Pa., has been made purchasing agent of the Bethlehem Construction Co., that city, engineer and fabricator of structural steel.

* * *

Karl Hermann, consulting engineer, Studebaker Corp., South Bend, Ind., recently purchased controlling interest in the Bantam Ball Bearing Co., Bantam, Conn, and South Bend. Operation will be consolidated at the latter point.

* * *

George Tyson, affiliated for some time with the Reading Iron Co., Reading, Pa., has been placed in charge of a district sales office, recently established at New Orleans. His headquarters are at 1216 Hibernia Bank building.

* * *

Jessel S. Whyte, vice president and secretary of the MacWhyte Co., Kenosha, Wis., maker of wire rope, cable, etc., has been appointed general manager. Herbert E. Sawyer, vice president and treasurer has been appointed general sales manager.

* * *

Frank S. O'Neill, plant manager at Indianapolis for the Link-Belt Co., Chicago, was recently elected president of the Indianapolis Foundrymen's association. Guy E. Street, American Foundry Co., is vice president; James H. Hooker, Sinker-Davis Co., is treasurer, and Andrew J. Allen is secretary.

* * *

E. R. Hanson, assistant superintendent of the Webster Electric Co., Racine, Wis., resigned March 1 to become superintendent of the Dumore Electric Co., that city. Until recently the company was known as the Wisconsin Electric Co., maker of fractional horsepower motors.

JOHN C. SPENCE

Who as noted on page 500 of IRON TRADE REVIEW of Feb. 14, purchased an interest in and was appointed works manager of the Universal Boring Machine Co., Hudson, Mass.

* * *

W. S. Orr, formerly chief engineer of the Central Alloy Steel Corp., Massillon, O., is now affiliated with the Freyn Engineering Co., Straus building, Chicago. He will leave for Russia, April 1, in connection with the appointment of the Freyn company as consulting engineer for the steel industry for the soviet government of Russia.

* * *

Le Roy Richards, formerly sales representative of the Alan Wood Iron & Steel Co. in the Philadelphia district, is now associated with the Columbia Steel & Shafting Co., Carnegie, Pa., being affiliated with its Edgar T. Ward's Sons Co. division in Philadelphia. Prior to 1920, Mr. Richards was Philadelphia manager for the Nagle Steel Co.

* * *

James W. Garside recently was elected chairman of the board of the Ampco Twist Drill Co., Jackson, Mich. Oscar Monrad is president and E. R. Young, vice president.

* * *

E. H. Wood, with headquarters at 220 Delaware avenue, Buffalo, has been appointed district representative for the stamping, forming and pressed metal contract department of the Geuder, Paeschke & Frey Co., Milwaukee.

Charles E. Davis has been appointed Cleveland territory representative with headquarters at 888 the Arcade building.

* * *

Walter E. Sjoden has been appointed manager of the Birmingham, Ala., plant of the American Radiator Co., to succeed A. D. Nichols, deceased. Mr. Sjoden has been superintendent of the plant for two years. He was educated in Buffalo university and went with the American company in 1916. He is the son of E. O. Sjoden, Buffalo, who for 40 years was pattern expert and designer for the company.

* * *

William W. Brown, who has been district sales manager at Atlanta, Ga., for the Youngstown Sheet & Tube Co., Youngstown, O., has been transferred to Pittsburgh. He succeeds Arthur Purnell, now Chicago district manager.

Walton W. Ford has been appointed district sales manager at Atlanta to succeed Mr. Brown. He became affiliated with the Youngstown company in 1923 when it acquired the Steel & Tube Co. of America having been with that interest for a number of years previously.

* * *

R. A. Shilbauer, for several years assistant advertising manager of the Chain Belt Co., Milwaukee, has been made advertising manager to succeed A. R. Abelt, who now will devote his entire time as sales manager of the chain and transmission division. The Feb. 21 issue of IRON TRADE REVIEW inadvertently erred in reporting the appointment of R. A. Shilbauer. Mr. Shilbauer became affiliated with the Chain Belt Co. as rate setter in 1920, working in various departments of its gray iron foundry and chain assembly plants on Park street, Milwaukee. He later was transferred to the West Milwaukee plant, which produces gen-

(*Concluded on Page* 687)

Obituaries

LANE JOHNSON, 52, chief engineer of the United Engineering & Foundry Co., Pittsburgh, died at his home in Ingram, Pa., March 2. Mr. Johnson was a graduate of the Massachusetts Institute of Technology, Boston, and prior to his connection with the United company had a wide experience in an engineering capacity through his affiliation with a number of large steel and engineering companies, including the American Rolling Mill Co., Middletown, O., where he served as mechanical engineer; Kokomo Steel & Wire Co., Kokomo, Ind., chief engineer; Colorado Fuel & Iron Co., Pueblo, Colo., mechanical engineer; Alex Laughlin, Pittsburgh, engineer.

* * *

William Miller Dudgeon, 63, president of Richard Dudgeon Inc., New York, hydraulic machinery manufacturer, died Feb. 28. While nominally the head of his company, he had been inactive since 1923.

* * *

Harry Conlon, vice president of the Gartland Foundry Co., Terre Haute, Ind., died recently in that city. He was born in Springfield, O., but removed to Terre Haute in 1904 to operate the foundry with his father.

* * *

John Camp Williams, 76, formerly vice president and general manager of the Western Tool Co., died Feb. 26, at his home in New York. His retirement followed the sale of the Western Tool Co. to the United States Steel Corp.

* * *

Myron C. Atwood, 65, president of the Western Wheeled Scraper Co., Aurora, Ill., died Feb. 26. Mr. Atwood started his career as a railroad man, later becoming assistant manager of the company he headed.

* * *

Harry P. McCabe, of the McCabe & Sheeran Machinery Corp., 50 Church street, New York, dealer in used equipment, died at his office of heart failure, Feb. 28. He had long been identified with the used machinery trade in that city.

He was 49 years old and had been president of the machinery corporation since it was organized about 10 years ago. Prior to that he had been identified with the used machinery business of his brother, J. J. McCabe.

* * *

Herbert Van Pelt, 59, president of the Service Steel Co. and the Plymouth Tube Co., Detroit, died there Feb. 25, after a short illness of pneumonia. He was born in Cleveland and 14 years ago was appointed Detroit representative of the Pittsburgh Steel Shafting Co. In 1920 he organized his own business enterprises.

* * *

H. W. Cromer, 63, vice president, McLain Fire Brick Co., Pittsburgh, died March 1. He had been a resident of Pittsburgh for 45 years, becoming connected with the McLain company 33 years ago. He entered the organization as salesman. Mr. Cromer also was vice president of the Hamilton State bank.

* * *

Edward P. Frederick, 74, general superintendent of the Broderick & Bascom Rope Co., St. Louis, died there Feb. 25 after more than 50 years continuous service for that corporation. He was nationally known as a designer and engineer in the wire rope industry. In 1911 he designed the cable for use in heavy construction in connection with the Panama Canal. In 1877 he joined the Broderick & Bascom Co. after graduating from Washington university.

* * *

Charles W. Bingham, 82, son of the founder of the William Bingham Co., Cleveland, wholesale hardware, machinery and tool dealer, died March 1. He retired from active business 15 years ago, retaining directorship in various companies. He formerly was president of the Standard Tool Co., Cleveland. He was a director of the Cleveland-Cliffs Iron Co., the Bourne-Fuller Co., and Union Trust Co. An anonymous donation of $500,000 to Case School of Applied Science was used to build the Charles W. Bingham mechanical engineering laboratory of that college.

* * *

Charles Hyde, British Consul in Pittsburgh, and engineer, died Feb. 26 at his home in Edgeworth, Pa. He was born in Birmingham, Eng., in 1862, and after taking a Whitworth scholarship, he located in America in 1886. He became identified with the engineering force at the Homestead steelworks of the Carnegie Steel Co., under Julian Kennedy. He was promoted to assistant superintendent of the open hearth and plate mill in 1887, resigning in 1888 to establish an office as consulting engineer in Pittsburgh, which he maintained until his appointment as British consul in 1924.

* * *

Alexander A. Adamson, 72, president, Akron Machine Co., Akron, O., producer of castings and manufacturer of patterns and hydraulic presses for the rubber industry, died at his home, Highland Springs, Akron, March 3. He was interested in an official capacity in a number of other concerns in the Akron industrial district. Mr. Adamson, a native of Scotland, came to the United States as a young man and settled at Palmyra, O., where he was identified with the mining industry before going to Akron. He started his business career there as a partner in a general machine shop in 1900, under the name of Adamson & Dennead. This firm later became the Adamson Machine Co. Mr. Adamson was the father of Cecil F. Adamson, East Palestine, O., manufacturer of tanks. Funeral services were held in Akron March 6.

Men of Industry

(*Concluded from Page* 686)

eral engineering and conveying equipment, concrete mixers and pavers, etc. In 1925 he was placed in the advertising department, where he later became assistant advertising manager.

* * *

Chandler Markel, assistant blast furnace superintendent of northern blast furnaces of the Republic Iron & Steel Co., Youngstown, O., has been promoted to superintendent. He succeeds William A. Haven, who resigned to become identified with the Arthur G. McKee Co., Cleveland.

* * *

Sam Tour, whose election on the executive committee on the Institute of Metals division of the American Institute of Mining and Metallurgical Engineers was announced in the Feb. 28 issue of IRON TRADE REVIEW, is no longer with the Doehler Die Casting Co. as stated. He is consulting metallurgist, 123 North street, Batavia, N. Y.

Castings Output Nears Record High

Washington, March 5.—Production of malleable castings in January totaled 73,169 tons, the highest mark since October, 1925, when the total was 73,195 tons, according to department of commerce statistics. Operation in January was at 77.5 per cent of capacity. Following are further monthly comparisons:

	Total tons produced	Per cent of capacity	Bookings	†Monthly capacity
1928				
January	61,072	62.7	62,328	97,424
February	65,359	66.8	64,419	97,797
March	70,070	73.0	70,288	96,040
April	63,380	66.0	62,056	96,004
May	67,903	70.7	63,847	95,981
June	67,090	69.9	61,071	95,944
July	60,290	63.1	60,964	95,544
August	68,606	72.1	66,128	95,101
September	62,665	66.3	61,163	94,481
October	70,054	73.4	65,780	95,504
November	63,560	66.8	59,664	95,080
December	59,432	63.4	61,319	93,773
Total	779,481	67.9	759,027	1,148,673
1929				
January	73,169	77.5	77,091	94,420

†Capacity during 1927 has been based on following formula: "Total number of units of molding floor space times average production per molder per day per unit of floor space, times number of actual working days per month." Beginning January, 1928: "Average monthly production for the best six consecutive months since Jan. 1, 1919, is to be taken as a practical monthly capacity."

Cold Weather Slows Up River Traffic

Pittsburgh March 5.—Cold weather retarded river traffic in all products in the Pittsburgh district during January, and shipments of iron and steel over the Ohio river were smaller than during December, or January, 1928. Traffic over the Monongahela river, however, showed an increase over the preceding month, and the corresponding month of last year. For the second consecutive month, no iron and steel was moved over the Allegheny river.

Figures are as follows:

1929	Allegheny	Monongahela	Ohio
January	.....	80,402	48,471
1928			
December	.....	79,595	78,213
November	800	143,238	137,019
October	1,130	131,281	130,808
September	200	136,227	125,062
August	50	109,738	124,066
July	.....	91,834	90,145
June	2,350	75,422	96,156
May	1,863	86,722	112,818
April	470	87,581	110,356
March	725	77,908	77,945
February	385	73,360	87,635
January	330	78,069	69,750
Total	8,303	1,160,975	1,239,973

Foundry Orders Rise

Cleveland, March 5.—January orders for foundry equipment increased over December, according to figures of the Foundry Equipment Manufacturers' association. Following are monthly comparisons:

	1926	1927	1928	1929
Jan.	168.2	180.4	132.7	180.5
Feb.	154.9	198.0	123.6	.....
Mar.	157.3	131.1	138.6	.....
Apr.	113.2	130.0	107.7	.....
May	128.5	134.8	335.6	.....
June	133.5	138.4	149.1	.....
July	127.3	89.9	94.8	.....
Aug.	141.2	106.4	278.0	.....
Sept.	114.0	80.4	170.0	.....
Oct.	140.5	98.0	185.0	.....
Nov.	133.4	95.8	197.8	.....
Dec.	181.0	106.8	166.5	.....

Base: Average monthly shipments for 1922-23-24.

January Steel Barrel Production Up

Washington, March 5.—Production of steel barrels in January advanced comfortably over December and was greater than January, 1927, according to the department of commerce. Members of the Steel Barrel Manufacturers' association, Cleveland, report shipments of 331,689 barrels and unfilled orders of 455,909 barrels. Average daily productive capacity of I. C. C. barrels was 35 per cent, light barrels 51 per cent, and all barrels 48 per cent. Monthly comparisons follow:

			Unfilled orders for delivery	
1928	Production	Shipments	within 30 days	beyond 30 days
Jan.	475,906	474,159	241,145	1,110,652
Feb.	518,944	514,362	297,889	1,119,738
Mar.	636,855	644,521	304,043	1,039,540
Apr.	667,827	661,949	357,131	919,863
May	696,281	694,843	324,549	932,568
June	712,779	717,496	319,443	840,313
July	647,844	645,881	341,346	891,066
Aug.	677,313	675,600	319,495	744,863
Sept.	593,255	595,640	292,686	704,134
Oct.	656,021	661,009	301,782	522,090
Nov.	563,647	568,353	*322,135	*634,982
Dec.	*551,113	549,913	246,460	1,110,983
Total (year)	7,397,784	7,403,726	.....	.....
1929				
Jan.	558,492	548,581	319,704	1,342,006

*Revised

Babbitt At High Mark

Washington, March 5.—Total apparent consumption of babbitt metal in January was 6,093,267 pounds and was the highest mark reached since March, 1926, when the total was 6,289,409 pounds, according to the department of commerce. Monthly comparisons follow.

	Total apparent consumption (Figures given in	Sold by manufacturers pounds)	Consumption by producers
1928			
January	4,928,517	4,034,352	894,165
February	4,470,368	3,443,694	1,026,674
March	4,927,634	3,903,071	1,024,563
April	4,842,656	3,724,691	1,117,965
May	4,606,899	3,578,422	1,028,477
June	4,731,023	3,625,347	1,105,676
July	4,692,825	3,816,707	938,955
August	4,755,662	3,843,680	911,982
September	5,308,403	4,309,004	999,399
October	5,796,419	4,605,179	1,191,240
November	5,630,417	4,356,670	1,273,747
December	4,985,942	4,148,601	837,341
Tot. (1928)	59,676,765	47,338,625	12,338,140
1929			
January	6,093,267	4,876,506	1,216,761

Structural Orders In Slight Gain

Washington, March 5.—Computed tonnage of fabricated structural steel in January was 246,400 tons, the same as in December, instead of making a slight increase as noted in IRON TRADE REVIEW for Feb. 21. Actual tonnage was slightly higher in January than in December, according to the department of commerce report. Monthly comparisons follow:

	——New Orders—— Actual tonnage	Per cent of capacity	Computed tonnage	Shipments computed tonnage
1928				
January	175,987	55	211,750	204,050
February	221,836	69	265,650	173,250
March	215,395	67	257,950	227,150
April	196,958	61	234,850	238,700
May	256,525	80	308,000	261,800
June	249,045	78	300,000	261,800
July	246,561	77	296,450	265,650
August	293,819	92	354,200	288,750
September	265,610	83	319,550	273,350
October	207,696	65	250,250	319,550
November	199,129	63	242,550	281,050
December	198,445	64	246,400	277,200
Total, 1928	.....	71	3,287,600	3,072,300
1929				
January	205,659	69	246,400	273,350

Reports received from April to December, 1928, were from 201 to 241 firms with a capacity of 308,000 tons to 322,000 tons.

January Steel Castings Approach Record

Washington, March 5.—Bookings for commercial steel castings in January totaled 125,800 tons and were the highest since March, 1924, according to the department of commerce statistics. The total in that month was 126,986 tons. Production in January was the highest since March, 1928. Following are comparisons by months:

	—Bookings— †Total net tons	Railway specialties	—Production— †Total net tons	Railway specialties
1927				
1928				
Jan.	91,448	41,276	74,454	28,714
Feb.	91,076	41,096	87,727	37,719
March	83,755	30,992	93,989	38,448
April	84,086	32,810	86,016	32,619
May	86,796	34,995	93,333	36,599
June	72,107	22,597	91,746	30,742
July	66,992	20,483	78,648	27,501
Aug.	81,286	25,171	87,742	27,157
Sept.	82,762	35,234	75,761	25,311
Oct.	78,860	26,736	87,952	29,471
Nov.	84,742	34,545	82,385	30,799
Dec.	96,373	43,928	82,203	26,484
Total	1,000,283	389,863	1,021,956	371,564
1929				
Jan.	125,800	66,293	93,410	35,689

†For tonnage of miscellaneous castings deduct Railway Specialties from the total.

Has Best Safety Record

Johnstown, Pa., March 5.—The Johnstown National plant of the National Radiator Corp. has been awarded a trophy for having the best safety record of the company's six plants in 1928. The National plant had 23 days of lost time during the entire year and at present has a record of more than 180 consecutive no lost-time accident days.

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

JONES & LAUGHLIN STEEL CORP. is doubling its river shipments of steel products to the South and Southwest. The company previously had been shipping one tow of steel barges monthly down the Ohio and Mississippi rivers for distribution to interior points from its warehouses in Cincinnati and Memphis and also from St. Louis, New Orleans and other river ports. Henceforth this service calls for two tows, each consisting of ten barges carrying 10,000 tons, to leave the Pittsburgh harbor monthly. To take care of this additional traffic the Jones & Laughlin company has made a temporary arrangement with the Union Barge Line Corp. pending enlargement of its own fleet. The Vesta Coal Co., a Jones & Laughlin subsidiary, handles the latter's river shipments.

* * *

WALLACE BARNES & CO., Bristol, Conn., manufacturers of springs, are completing an addition of 200,000 square feet to add to production facilities.

* * *

AMERICAN ELECTRO METAL CORP., subsidiary of a European holding company, is building its first plant in this country at Lewiston, Me.

* * *

WILEY MFG. CO., Detroit, manufacturer of capped nuts, has moved its offices and plant from 1033 Mt. Elliott avenue, to a new and larger plant at 4091 Beaufait avenue.

* * *

TRIPLEX WASHING MACHINE CO., Chicago, has leased a 1-story factory building at 2049 North Oakley avenue, with option to purchase. The plant contains about 20,000 square feet.

* * *

P H. MALLORY CO. of Indiana is reported to have bought the Indianapolis plant of the National Lamp Co., division of the General Electric Co. It will manufacture the new cutting metal, carboloy.

* * *

WROUGHT IRON CO. OF AMERICA has opened a branch office at 393 Seventh avenue, New York, to serve the metropolitan district. Its plants are at Scranton and Lebanon, Pa.

* * *

STUDEBAKER CORP. OF CANADA has leased a portion of the automobile plant of the Gotfredson Truck Corp. at Walkerville, Ont. The latter company is in hands of a receiver. The personnel will be retained and operations will be continued.

* * *

FEDERAL-MOGUL CORP., Detroit, is building an addition covering 25,000 square feet at its plant No. 1 in Detroit, to house a die casting division. It will handle contract manufacture of die-cast parts. D. W. Rodger is director of sales.

* * *

NILES TOOL WORKS, Hamilton, O., has re-elected officers, as follows: President, J. K. Cullen; vice presidents, Col. E. A. Deeds, Dayton, and G. A. Rentschler; treasurer, John Black. Oliver Ackley was elected secretary, succeeding E. H. Pierce, resigned.

* * *

CENTURY ELECTRIC CO., St. Louis, has opened two district sales offices, each with stocks, at Union State Bank building, Nineteenth and Farnam streets, Omaha, and 718 Continental Bank building, Monument place and Meridian street, Indianapolis.

* * *

DELCO-REMY CORP., subsidiary of the General Motors Corp., has bought the Butler Mfg. Co., Indianapolis, Charles R. Butler president. The company manufactures aluminum pistons and special piston rings. Their manufacture will be continued.

* * *

NACHMAN - SPRINGFILLED CORP., Chicago, and Kay Mfg. Co., Brooklyn, N. Y., have been merged. Both concerns manufacture wire springs and spring constructions, as well as spring accessories for furniture manufacturers. The main plant of the Kay Mfg. Co. is at Brooklyn, with a branch at Chelsa, Mass., and warehouses at several other cities.

* * *

PRATT & WHITNEY AIRCRAFT CO., Hartford, Conn., has organized a Canadian branch at Longueuil, Que. Production is expected to start shortly. This move is to meet demand for the company's airplane engines, which are used by Canadian Transcontinental Airways, the Canadian air force, the department of civil aviation and Canadian Colonial Airways.

* * *

SUTTON ENGINEERING CO., Pittsburgh, has repurchased the right to sell its products in countries other than Canada and South America, in addition to the United States. Territorial restrictions heretofore existing in foreign fields have been removed and the company now has a world market for its various products, including pipe straighteners, bar straighteners, sheet levelers and other rolling mill equipment. J. Blair Sutton is president.

* * *

CENTRAL ALLOY STEEL CORP., Massillon, O., has booked a tonnage of toncan iron plates for the construction of 1000 gondola cars to be built by the Standard Steel Car Co. for the Wheeling & Lake Erie railroad. Specifications for these cars call for lighter plates of this material, since allowance for loss by rust is not considered. The saving in weight for each gondola is estimated at one ton, thus lessening non-revenue weight as well as weight of material to be bought.

* * *

CONSHOHOCKEN FOUNDRY CO. has been formed by members of David Baker Inc., engineers, Philadelphia. The new company has bought an established foundry at Conshohocken, Pa., and will reconstruct to meet its needs. Production was started in February. The Baker organization has metallurgical problems relating to the foundry to work out and this led to formation of the foundry corporation. David Baker Jr. has had experience in making iron and castings and is the originator of a direct metal process. E. T. Child formerly was vice president of the Southwark Foundry & Machine Co., Philadelphia, and is a mechanical engineer. L. C. Crewe, president of the new company, was for many years president of the LaFollette Coal & Iron Co. and more recently was in charge of the Robesonia Iron Co., Robesonia, Pa. These three form the Baker organization.

The foundry will melt by cupola and crucible furnace and an electric furnace may be added later. Frank A. Booth is superintendent of the plant and A. B. Fairbairn is in charge of sales.

* * *

OLIVER FARM EQUIPMENT CO. is being formed by merger of the Nichols & Shepherd Co., Battle Creek, Mich., Hart-Parr Co., Charles City, Iowa, and Oliver Chilled Plow Works, South Bend, Ind. Merging will be accomplished by exchange of stock of the new company for that of the old.

* * *

MONTGOMERY IRON & STEEL CO., Philadelphia, formerly conducted by W. Nelson Mayhew and Sampel Frank and by the former since the death of the latter, has been incorporated under the same name, with Mr. Mayhew as president. No change is made in the policy, personnel or location of the business.

* * *

PENNSYLVANIA ENGINEERING WORKS, New Castle, Pa., has taken a contract from the A. M. Byers Co., Ambridge, Pa., for two 10-ton converters with auxiliary equipment, including jack cars, slag cars, ladles, dragout and tilting cranes. This equipment is for the new Byers plant for making puddled iron.

* * *

BLAW-KNOX CO., Pittsburgh, has taken over in merger A. W. French & Co., Chicago. This company manufactures concrete and asphalt road-finishing machinery and graders. Personnel and policies of the French company will be continued and it will function as a separate division of Blaw-Knox Co.

* * *

ERIE FOUNDRY CO., Erie, Pa., has bought from the Beaudry Co. Inc., Boston, its line of motor-driven air hammers, in which the air compressor and motor are integral with the hammer. The purchaser plans to develop and enlarge the line to 2500 pounds capacity. These hammers will be added to the forge shop equipment already manufactured by the Erie company.

* * *

DETROIT ALLOY STEEL CO., Detroit, is introducing a line of alloy tool steels under the brand "Dasco." The company was formed recently by Hugh Martin, president of the Detroit Gray Iron Foundry Co., who has been made president, Louis W. Schimmel, vice president, and Harry H. Wyatt, secretary and treasurer. The company also is specializing in cast steel dies from the same alloys. The alloys cover a considerable range, suiting them to various uses in tools and dies.

775,000 Tons of Steel for Cars Purchased Recently at Chicago

CHICAGO, Feb. 26.—Western railroads have outstripped carriers in other territories in the spirited buying movement of cars and car equipment of the past 90 days.

In this period a total of 34,252 cars and main structural parts, including underframes, has been placed with builders in this district. On the basis of cars for which western steel producers will supply the majority of steel, the total is 35,000 to 37,000.

Formerly 10 tons of finished steel to the car, above the trucks, was considered a good average, but with heavier and all-steel construction and including trucks, carbuilders figure on about 25 tons of steel to the car. Accordingly, from 750,000 to 775,000 tons of steel is required for western awards recently. This does not include castings and wrought iron.

Passenger cars account for only 2 per cent of the total. Underframes and parts totaled 5306, while freight cars not including those for the Canadian National and Canadian Pacific railroads aggregated 28,946. This is exclusive of 2000 gondolas and 500 40-ton box cars for the Chesapeake & Ohio placed several days ago.

In the accompanying table is given the detail of equipment purchases in the Chicago district since Dec. 1.

Rail orders going to western mills for 1929 shipment are reported well over 800,000 tons. It is estimated that the total for the country, including secondary buying, will be close to 2,000,000 tons. Buying of rails started much earlier than usual for 1929 delivery. By the middle of last November virtually half the total tonnage had been ordered from western rail mills.

Underframe awards in this period total 5306, including 500 by Armour & Co., 100 by the Chicago & North Western, 196 by the Fruit Growers' Express, 2500 by the Great Northern, 600 by the Pacific Fruit Express, 10 by the St. Louis-Southwestern, 300 by Swift & Co., 800 by the Western Fruit Express, and 300 by St. Louis-San Francisco.

Iron first was smelted in England with crude coal about 1618.

Detail of Car Buying at Chicago Since Dec. 1, 1928

	Box	Flat	Gon. and Hoppers	Stock	Ore and Tank	Refrig.	Bag. and Pass.	Misc.	Total
American Refrigerator Transit Co.	....	....	....	....	....	1000	....	....	1000
American Smelting & Refining Co.	....	....	25	....	....	....	....	....	25
American Steel Foundries	....	....	....	....	....	....	....	3	3
Chicago & Eastern Illinois	*400	....	....	....	....	....	....	....	400
Chicago & North Western	*1000	300	1400	....	....	....	13	218	2931
Chicago, Minneapolis, St. Paul & Omaha	....	....	....	....	....	....	....	4	4
Chicago, Burlington & Quincy	....	....	†498	....	....	....	20	12	530
Chicago & Great Western	300	....	....	....	....	....	....	....	300
Chicago, Indianapolis & Louisville	100	....	....	....	....	....	....	10	110
Chicago, Milwaukee, St. Paul & Pacific	1000	250	1000	....	....	....	3	1	4
Chicago, Rock Island & Pacific	1000	250	1000	....	....	....	25	260	2535
Chicago, South Shore & South Bend	....	....	....	....	....	....	2	30	32
Chile Exploration Co.	....	....	....	....	80	....	....	....	....
Colorado Southern	....	....	....	....	....	....	....	1	1
Elgin, Joliet & Eastern	....	**75	250	....	....	....	....	....	325
Gary & Southern Traction Co.	....	....	....	....	....	....	2	....	2
Great Northern	**500	500	300	....	600	....	....	6	1906
Hercules Powder Co.	....	....	....	....	10	....	....	....	10
Illinois Central, incl. C. & I.W.	*1000	200	1750	....	....	....	....	25 (cabooses)	2975
Illinois Traction System	100	....	100	....	....	....	....	....	200
Louisiana & Arkansas	....	....	....	....	....	....	....	2	2
Mich. Limestone & Chemical Co.	....	....	....	....	....	....	....	10	10
Minneapolis, St. Paul & Sault Ste. Marie	400	....	....	....	....	....	....	....	....
Missouri-Kansas-Texas	....	....	50	....	....	....	....	....	....
Missouri Pacific	2500	....	500	500	....	....	80	80	3660
Montour	....	....	....	....	....	....	....	10	10
Nevada Consolidated Copper Co.	....	....	....	....	50	....	....	....	50
North American Car Co.	....	....	....	....	500	....	....	....	500
Northern Pacific	....	....	....	....	....	....	....	10	10
Northern Refrig. Car Co.	....	....	....	....	....	300	....	....	300
Northwestern Pacific	....	....	....	....	....	....	....	10	10
Pere Marquette	1000	....	400	....	....	....	....	100	1500
Rapid City, Black Hills & Western	....	....	....	....	....	....	....	1	1
Richardson Refining Co.	....	....	....	....	200	....	....	....	200
St. Louis-San Francisco	(a)10	....	....	....	....	....	....	....	10
St. Louis-Southwestern	....	....	....	....	....	....	....	2	2
Sanitary District of Chicago	....	....	....	....	....	....	....	20	20
Santa Fe	2500	200	870	750	175	500	58	250	5103
Southern Pacific	**300	....	....	....	....	....	....	50	350
Sun Oil Co.	....	....	....	....	340	....	13	....	353
Swift & Co.	....	....	....	....	....	**300	....	....	....
Texas Co.	....	....	....	....	675	....	....	....	675
Union Pacific	....	....	....	....	....	....	60	....	60
Utah Copper Co.	....	....	....	....	100	....	....	22	122
Wabash	†2035	....	....	....	....	....	....	....	2035
Western Pacific	*250	50	....	....	50	....	....	....	350
Total	13,395	1,575	7,143	1,250	2,580	2,100	662	741	29,446

*Auto **To own shops †Rebuilding (a)Parts for

British Industry Is Improving

Iron and Steel Requirements Expanding—Prices Stronger—Large Rail and Locomotive Orders Placed—Shipyards Busier—January Iron Output in France Sets New Record—Comptoirs Maintaining Prices—Export Business Satisfactory

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, March 5.—(*By Cable*)—Market indications point to a general improvement in the iron and steel trade. Shipyards are calling for larger tonnages of steel, and all are reported to be pledged to use British material. Structural requirements are low at present owing to severe cold weather. The British Steel association is expected to raise prices of heavy steel.

British steelworks are absorbing a larger tonnage of pig iron, and business in the Middlesbrough district is especially active. Barrow furnaces are selling low phosphorus iron in France, Belgium, Germany and Italy.

Makers of semifinished steel are receiving orders formerly placed on the Continent. Prices of billets are higher. Demand for galvanized sheets and tin plate is quiet. An order for 6000 tons of rails has been placed with a British mill for delivery to South Africa. Large export orders for locomotives also have been received.

A report from Paris states domestic iron and steel business is quieter, while exports are satisfactory. The comptoirs have taken action at recent meetings to maintain present prices, except for an advance in hematite. Pig iron and steel output in France in January established a new high record. The total tonnage, however, has not been announced as yet. Substantial orders for concrete reinforcing bars have been placed with Belgian mills for shipment to Colombia. Berlin reports domestic trade quiet and export business good.

British Steel Exports and Home Use Larger

LONDON, Feb. 15.—(*European Staff Service*)—Material improvement has been registered in the iron and steel exports of Great Britain in the past two weeks. Demand for finished steel from foreign markets has expanded and good business has been transacted in certain instances. In particular there was revival in demand for sheets, which came just as some producers were getting rather slack. With regard to imports, considerable business in semifinished steel was transacted with continental works early in the month, orders totaling several thousand tons having been placed for forward delivery. More recently, however, the situation in continental semifinished steel has become stringent and prices have hardened.

On the continent, export business in France and Belgium is slightly less active so far as new orders are concerned, while the Germans are striving to expand their export trade. Prices are firm and, with the exception of one or two descriptions, tend to increase. This is particularly the case with respect to semifinished steel, current sizes in merchant bars, and hoops and bands, for which deliveries extend over three months. The hoop and band international syndicate has decided to advance its base price from £6 5s ($30.30) to £6 7s 6d ($30.90). Belgian sheet bars now have reached £5 7s ($25.95), while normal-size beams are only £5 1s ($24.50). Luxemburg business is active and pig iron makers cannot satisfy demand for export. They have let orders be taken by French makers for the Aus-

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, March 4	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$16.25	3 7 0*	$16.49	3 8 0	$16.49	3 8 0	$16.49	3 8 0
Basic	15.76	3 5 0	15.76	3 5 0	15.76	3 5 0	15.28	3 3 0
Basic-bessemer	17.22	3 11 0†	15.76	3 5 0	15.76	3 5 0	14.55	3 0 0
Hematite, Phosphorus 0.02-0.05	17.46	3 12 0	23.66	605*	.....	.....	17.46	3 12 0
SEMIFINISHED STEEL								
Billets	$31.53	6 10 0	$25.22	5 4 0	$25.22	5 4 0	$25.22	5 4 0
Wire rods	41.83	8 12 6	30.92	6 7 6	30.92	6 7 6	30.92	6 7 6
FINISHED STEEL								
Standard rails	$37.59	7 15 0	$31.53	6 10 0	$31.53	6 10 0	$31.53	6 10 0
Merchant bars	1.68c	7 15 0	1.35c	6 3 0	1.35c	6 3 0	1.37c	6 4 0
Structural shapes	1.60c	7 7 6	1.11c	5 1 0	1.11c	5 1 0	1.12c	5 2 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.38c	6 5 0	1.38c	6 5 0	1.41c	6 7 6
Sheets, black, 24 gage	2.17c	10 0 0	2.28c	10 7 6	2.28c	10 7 6	2.50c	11 7 0
Sheets, galvanized, 24 gage, corrugated	2.96c	13 12 6	3.01c	13 13 9	3.01c	13 13 9	3.43c	15 12 0
Bands and strips	2.17c	10 0 0	1.40c	6 7 6	1.40c	6 7 6	1.49c	6 15 0
Plain wire, base	2.12c	9 15 0	1.71c	7 15 0	1.71c	7 15 0	1.65c	7 10 0
Galvanized wire, base	2.93c	13 10 0	2.17c	9 17 6	2.17c	9 17 6	2.20c	10 0 0
Wire nails, base	2.39c	11 0 0	1.80c	8 3 9	1.80c	8 3 9	1.87c	8 10 0
Tin plate, base box 108 pounds	$ 4.37	0 18 0	.....	.....	.....	.....	$ 6.79	1 8 0

*France

Domestic Prices at Works or Furnace—Last Reported			Francs			Francs		Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.25	3 7 0	$18.57	475(2)	$16.68	600	$18.51	78
Basic pig iron	15.76	3 5 0	19.94	510(1)	16.96	610	20.88	88
Furnace coke	3.52	0 14 6	5.87	150	5.56	200	5.11	21.50
Billets	30.92	6 7 6	23.07	590	24.60	885	28.72	121
Standard rails	1.79c	8 5 0	1.46c	810	1.63c	1,250	1.51c	140
Merchant bars	1.68c	7 15 0	1.33c	740	1.42c	1,090	1.52c	141
Shapes	1.71c	7 17 6	1.26c	700	1.22c	940	1.49c	138
Plates, ship, bridge and tank	1.87c	8 12 6‡	1.54c	855	1.46c	1,125	1.71c	158
Sheets, black, 24 gage	2.28c	10 10 0	2.92c	1,620	2.70c	2,080	2.43c	225
Sheets, galvanized 24 gage, corrugated	2.96c	13 12 6	3.69c	2,050	3.84c	2,950	3.78c	350
Plain wire	2.12c	9 15 0	1.94c	1,075	2.08c	1,600	2.48c	230
Bands and Strips	2.17c	10 0 0	1.51c	840	1.76c	1,350	1.77c	164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 14s 6d ($3.52) f. o. b. Ferromanganese £21 13s 0d ($105.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($72.75) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

trian market. Demand for semifinished steel from Great Britain, Belgium and Japan is such that Luxemburg mills refuse orders, even at £5 3s ($25) for 2-inch billets. Other departments also are busy.

The Germans are enjoying some good orders, particularly from Japan. They are not offering much semifinished steel, but are making slight concessions for beams. German merchant bars are sold at about £6 4s ($30); plates have eased to £6 5s 6d ($30.45) for 1000-ton orders of basic bessemer quality, while open-hearth plates reach £7 7s 6d ($35.75). Skelp has been sold to Great Britain for £6 7s 6d ($30.90) for a 900-ton order. The United Steelworks Corp. of Germany has reported that 50 per cent of its January sales were for export.

British Activity Lags

Birmingham, Eng., Feb. 19.—(*European Staff Service*)—The British Ministry of Labor Gazette gives the usual particulars relative to wages, unemployment, cost of living in January.

In the pig iron industry, employment showed an improvement compared with December. Returns show that 139 furnaces were in operation at the end of the month, compared with 132 in December and 148 in January, 1928.

Employment in iron and steel manufacture was still bad and showed little change compared with the previous month. Of the 67,805 workpeople employed 7220 were engaged at open-hearth melting furnaces, 1953 at puddling forges, 25,143 at rolling mills, 2978 forging and pressing, 7755 founding, other departments 8550, mechanics and laborers 14,205.

French Ore at Record

Paris, Feb. 11.—(*European Staff Service*)—Output of iron ore in France during 1928 exceeded all previous figures and amounted to 49,317,589 metric tons, against 44,678,415 tons in 1927, an increase of 10.4 per cent. The output was at its highest in October, when 4,509,252 metric tons were extracted. The following table gives monthly comparisons in metric tons:

Mon. ave.	Production	Stocks at end of month
1913	1,826,500	.....
1925	2,943,204	.....
1926	3,269,033	.....
1927	3,723,200	.....
1928	4,109,780	.....
1928		
Jan.	4,122,386	2,668,569
Feb.	3,889,642	2,627,592
March	4,208,746	2,624,395
April	3,698,631	2,358,372
May	3,973,447	2,380,444
June	4,200,792	2,319,649
July	4,080,816	2,289,943
Aug.	4,282,029	2,371,454
Sept.	4,093,044	2,379,936
Oct.	4,509,252	2,512,521
Nov.	4,216,647	2,706,209
Dec.	4,042,157	2,729,826
Total	49,317,589	

Belgian Tonnage Gains

Brussels, Feb. 12.—(*European Staff Service*)—Provisional figures giving the production of iron, steel and coke in Belgium for 1928 indicate a substantial improvement in comparison with the output of previous years. Production of pig iron in Belgium during 1928 was 3,905,320 metric tons, against 3,751,440 tons in 1927, an increase of 4.1 per cent. Several times during the year the previous record outputs were exceeded, and the highest figure registered was in December with 345,280 metric tons.

The output of steel ingots and castings in Belgium in 1928 totaled 3,934,470 metric tons, as against 3,708,495 tons in 1927, an increase of 6.15 per cent.

The output of rolled steel products also increased from 3,062,220 metric tons in 1927 to 3,378,490 tons in 1928, corresponding to an increase of over 10 per cent.

Comparisons are as follows:

Mon. ave.	Coke	Act. furn.	Pig iron	Steel ingots and castings	Finished steel
1913	294,000	....	207,055	205,550	154,920
1925	342,645	....	211,875	212,380	151,215
1926	413,000	....	283,270	281,160	231,810
1927	448,880	....	312,620	309,040	255,185
1928	493,885	....	325,445	327,870	281,125
1928					
Jan.	488,980	55	314,580	315,650	277,870
Feb.	455,480	55	302,000	310,410	260,290
Mar.	495,330	55	326,720	326,280	277,070
Apr.	480,990	55	313,220	305,110	259,090
May	506,140	56	328,810	325,160	276,250
June	489,250	56	321,030	329,480	291,750
July	501,250	56	324,340	319,660	267,350
Aug.	504,710	56	328,590	342,110	293,180
Sept.	491,700	56	325,080	330,830	282,710
Oct.	497,940	56	344,200	356,350	309,600
Nov.	499,410	56	331,470	340,110	290,430
Dec.	515,420	56	345,280	333,320	287,790
Tot.	5,926,600	....	3,905,320	3,934,470	3,378,490

Luxemburg Output Grows

Brussels, Feb. 12.—(*European Staff Service*)—Output of pig iron and steel in the grand duchy of Luxemburg during 1928 materially exceeded the tonnage produced in 1927. For pig iron the output was 2,770,061 metric tons, as compared with 2,732,495 tons in 1927. The highest monthly output on record was reached in March, 1928, with 240,234 metric tons. The December tonnage included 230,972 tons of basic bessemer and 3210 tons of foundry pig iron.

Output of steel ingots and castings in 1928 was 2,567,080 metric tons, as against 2,407,128 tons in 1927. These figures show that while the increase in pig iron production was comparatively small, the output of steel improved by 6.7 per cent. The December output included 214,970 tons of basic bessemer, 2104 tons of open hearth and 716 tons of electric steel. The following table gives monthly comparisons in metric tons:

Mon. ave.	Pig iron	Steel ingots and castings
1913	212,320	111,355
1925	196,940	173,855
1926	209,295	186,980
1927	226,115	205,850
1928	230,840	214,315
1928		
Jan.	229,602	212,939
Feb.	220,114	205,053
March	240,234	220,309
April	226,983	202,586
May	233,806	214,756
June	230,484	214,925
July	224,807	207,687
August	233,521	224,182
Sept.	231,372	209,163
Oct.	236,429	228,975
Nov.	228,527	213,414
Dec.	234,182	217,790
Total	2,770,061	2,567,080

Unusual European Cold Hampers Production of Steel in France

PARIS, Feb. 15.—(*European Staff Service*)—The exceptional cold prevailing over all Europe is interfering with business. Already in January frost had interfered with navigation, but the further drop in temperature, which in the east of France reaches minus 20 degrees Fahr., is preventing all circulation on the waterways and also delaying trains, and even having an effect on the operation of iron and steel works, several of which are faced with the possibility of having to shut down. The economic life of the country is seriously affected by these exceptional climatic conditions, for which the country is not equipped.

From the market point of view, it is feared that the prevailing conditions will result in an increase in the price of raw materials, owing to scarcity. Automatic discharging freight cars for iron ore will not function, because the whole load forms one mass. The same applies to coking coal. Those works which receive most supplies of raw material by water now are obliged to receive shipments by rail, and this increases their production costs.

Already it is apparent the tendency of prices is toward a rise, owing to shortage of labor and application of new labor legislation, and this tendency is further increased by the exceptional circumstances mentioned above.

Franc—3.91c

The position of the collieries has considerably improved, both for domestic and industrial coal, due to the cold period and to the activity of the heavy industries. The pig iron market registers no change. Both in the domestic and export markets there is a scarcity of semifinished steel, and the transforming industries are beginning to be seriously hampered by this state of affairs.

The price of merchant bars is firm, with a rising tendency. In the north of France. merchant bars are quoted at 770 to 780 francs ($30.45 to $30.80) and in the east at 760 to 770 francs ($30 to $30.45). Hoops and bands have been increased by 15 francs (59c) over and above the price list. Plates are quoted at 820 to 830 francs ($32.45 to $32.80) in the north. Medium-sized sheets are quoted at 860 to 890 francs ($34 to $35.15) in the east, and the smaller gages range from 1140 to 1150 francs ($45 to $45.50) both in the north and in the Meurthe-et-Moselle district. The wire products market is firm, but many works are hampered in their deliveries by the intense cold.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

BRISTOL, CONN.—New Departure Mfg. Co. plans the construction of a boiler house including four 600-horsepower high pressure water tube boilers.

HARTFORD, CONN.—J. C. Barrett Co., 516 Asylum street, manufacturer of aluminum plate, plans the construction of a 2-story plant, 40 x 100 feet.

HARTFORD, CONN.—Hartford Electric Light Co., Pearl street, S. Ferguson, manager, plans to build a 4-story power service building for distribution and lighting departments.

NEW LONDON, CONN.—U. S. Coast Guard academy, Monegan avenue, plans the construction of an academy, including a power plant, etc.

SOUTH NORWALK, CONN.—Nash Engineering Co., Wilson road, plans to build boiler and transformer units.

WASHINGTON—Quartermaster, war department, State-War-Navy building, plans the construction of field shops, hangars, central heating plant, etc., at Ft. Leavenworth, Kans., and Marshall Field, Ft. Riley, Kans.

LEWISTON, ME.—American Electric Metal Corp., I. P. Schwartzkopf manager, soon will award the contract for the construction of a 1-story plant and laboratory, 110 x 130 feet.

OLD TOWN, ME.—City water district commission plans to build a pumping station and filtration plant. Westron & Sampson, 14 Beacon street, Boston, are architects.

BALTIMORE—Glenn L. Martin Co., Leland and Ponca streets, has let the contract for structural steel for an airplane manufacturing plant to McClintic-Marshall Co. (Noted Feb. 28).

BOSTON—Eaton Axle & Spring Co., East Sixty-fifth street and Central avenue, Cleveland, is completing an addition which will double the capacity of the plant.

CHELSEA, MASS.—American Bed Chair Co., manufacturer of metal convertible beds and chairs, plans to open a plant soon here.

MELROSE, MASS.—Cheney Co., Allan Cheney, 317 Grove street, president and treasurer, incorporated recently, advises that it manufactures wall flashings of copper, zinc and lead. It does not plan building at present but is requiring considerable machinery. (Noted Feb. 28).

SPRINGFIELD, MASS.—Spartan Saw Works, 152 Fish avenue, plans the construction of a plant. P. B. Johnson, 1562 Main street, is architect.

WORCESTER, MASS.—Norton Co. is making additions to its plant to care for increased demands on its wheel division. An abrasive mill, 48 x 150 feet, 5 stories, and an addition to the abrasive grain storage building, 50 x 108 feet, 4 stories, will be erected. New crushing and other equipment will be installed in the new abrasive unit.

EAST RUTHERFORD, N. J.—Asiatic Petroleum Co. of New York Ltd., 65 Broadway, New York, plans to build a boiler house, 50 x 70 feet, here.

BROOKLYN, N. Y.—Palmer Bros. Inc., 112 Front street, will install power equipment in the rebuilt part of its electrical appliance manufacturing plant burned in a fire Feb. 14.

BROOKLYN, N. Y.—Contract for improvements to the company's Mobile, Ala., plant has been awarded by the Todd Shipyard Corp. Inc., this city, to Doullut & Ewin, Mobile contractors. Improvements consist of dredging a slip adjacent to the present plant and construction of a 650-foot outfitting wharf.

IRONDEQUOIT, N. Y.—North Goodman sewer commission plans the construction of a pumping station and a sewage system. J. P. Wells, 80 East avenue, Rochester, N. Y., is engineer.

NEW YORK—Erie railroad, 50 Church street, plans to spend $3,000,000 on improvements to docks, piers and terminal facilities here.

NEW YORK—Charles Freshman Co. Inc., 240 West Fortieth street, radio manufacturer, has leased a 6-story building in Clifton, N. J., and will occupy it for a branch plant.

NORTH TONAWANDA, N. Y.—Rudolph Wurlitzer Co. has let the structural steel contract for the construction of a plant addition to Kellogg Structural Steel Co.

APOLLO, PA.—A sale of new stock has been voted by the Apollo Steel Co., the money to be

(*Continued on Page* 695)

Resale Equipment News

ASSETS of the McMyler Interstate Co., Bedford, O., will be offered for sale a second time March 29. At the first offering bids were refused because two-thirds of the $1,800,000 appraised value was not offered. The court has ordered the mortgaged assets to be sold for not less than $500,000. P. A. Connelly, one of the receivers, has been appointed a special master commissioner in charge of the public sale.

* * *

The assets of the Electric Motor Machinery Co., Chicago, will be sold at public auction March 7 by Samuel L. Winternitz & Co. The property consists of a large stock of metal working machinery, woodworking machinery, office fixtures and miscellaneous equipment.

* * *

J. A. Spencer Foundry & Machine Works, Dwight, Ill., has been sold at public auction to satisfy a judgment to the First National bank of that city.

* * *

Equipment of the Holmes Electrical Mfg. Co., 5116 Ravenswood avenue, Chicago, was sold at auction, March 4, by Michael Tauber & Co., auctioneers. The company manufactured battery chargers, radio parts and electrical supplies. The equipment included punch presses, foot shears, drill presses, lathes, hack saw, grinder, motors and other machinery.

* * *

Property of the Sizer Steel Corp., Buffalo, will be sold at auction March 9. The property is located at Larkin street, the New York Central and Erie railroads, and consists of a plot 320 x 541 feet, including a mill race strip under lease, about 4 acres. Buildings include four units 500 feet long and 56 to 77 feet wide; of brick, steel, reinforced concrete and sheet steel, 1-story foundry type; contain over 140,000 square feet floor space.

Sales Calendar

March 9.—Property of Sizer Steel Corp., Buffalo, to be sold at auction.

March 29.—McMyler-Interstate Co., Bedford, O., offering assets for sale, bids at first offering having been refused.

Machinery

Heavy Buying Continued by Large Number of Users—Prices Tend Upward Under Demand—Cranes More Active

BUYING of machine tools continues steady in the heavy volume that has prevailed for some time and deliveries are being pushed further back each week. Prices are following pressure and advances are being announced on various lines of tools. Delivery is coming to be of more importance than price in the minds of buyers. General Electric Co. continues active and one of the largest buyers. Railroads centering at Chicago are said to be preparing lists for presentation soon. Radio departments of General Electric and National Carbon Co. are buying tools to meet demands. Crane makers are finding better demand for their product and activity has succeeded the former slackness in this branch of the machinery trade.

New York, March 5.—Brisk trading in machine tools continues, with deliveries becoming more uniformly advanced. On the general standard types, with the possible exception of sensitive drills, light engine lathes and possibly one or two other types, deliveries are now holding around two months, and in the case of special equipment deliveries are extended considerably further. This situation prevails notwithstanding an exceptionally high rate of operations. Many leading plants are working day and night shifts. In some instances certain work has had to be sublet, and in general conditions present all the aspects of boom times.

It is not surprising that some price advances are being announced with prospects of similar action in others. Recent increases include an 8 per cent advance in a line of surface grinders and a similar advance in a line of cylinder borers. In the material handling market, at least four hoist manufacturers have announced advances of 10 per cent, three effective since March 1 and one since Feb. 25.

The General Electric Co., Schenectady, N. Y., is expected to take action this week on the large list of machine tools issued three weeks ago for its radio department. Meanwhile, the company continues to bring out scattered inquiries for its various departments and has closed several machines, including four turret lathes. The International Motors Co., with headquarters here, continues a buyer; also, the American Cirrus Engine Inc., Belleville, N. J. Worcester Pressed Steel Co., Worcester, Mass., has a substantial list of machine tools under contemplation. A local steel fabricator has closed on two radial drills.

Worcester, Mass., March 5.—Machine tool buying continues with little abatement. Demand is well spread, but is especially brisk for lathes of all types, planers, drills, automatic and precision tools. There is an absence of large lists, but groups of two and three units bring the total up. February sales of new equipment surpassed January and were well ahead of the same month last year. Grinding machinery continues in strong demand. A grinding machinery maker will soon be in the market for a list of heavier crushing machinery for an addition. Machine shop and metal working plants are taking a fair quota of equipment. Demand for electrical machinery is active, especially individual motor units. Drilling tools and compressed air units are also gaining with the development of spring projects. Used tools are selling fairly well and small tool demand is good.

Pittsburgh, March 5.—Inquiry for machine tools is heavier, following a slight lull recently. Dealers report continuation orders and total sales are large for this period. Prospective work indicates good business for some time ahead. Buying generally is restricted to a few tools at a time.

The crane market is more active, recent awards including six electric cranes for the new Messina, N. Y., plant of the United States Aluminum Co., and one for the Homestead works of the Carnegie Steel Co., all of which were awarded the Alliance Machine Co.

CRANE ORDERS PLACED

Six electric cranes for United States Aluminum Co. plant at Messina, N. Y., to Alliance Machine Co., including three 10-ton capacity, two 72-foot and one 47-foot span; two 7½-ton with 57-foot and 72-foot span, respectively; and one 50-ton with 7½-ton auxiliary hoist, 61-foot span.

Two 115-ton, 4-motor cranes, 61-foot span, for Connecticut River Development Co., Boston, to Cleveland Crane & Engineering Co.

Five crawler cranes for Rodgers & Hagerty, New York contractors, placed, contract reported going to Ohio Power Shovel Co.

Single orders include: 5-ton 23-foot three-motor electric crane for Line Material Co., South Milwaukee, Wis., 5-ton 33-foot 8-inch span eight beam hand power crane for Consolidation Coal Co., June, W. Va., 1-ton 30-foot span single I-beam electric crane for unstated buyer, 3-ton 20-foot 11½-inch span special three-motor crane for Consolidated Machine Tool Corp., Rochester, N. Y., 2-ton 20-foot span motor driven underhung crane for Northwest Side Iron Works, Chicago; 2-ton 30-foot span three-motor cage operated electric crane for Ames Shovel & Tool Co., Northeaston, Mass., 5-ton 40-foot span single I-beam side braced hand geared traveling crane for export to Mexico, all to H. D. Conkey & Co.; 25-ton electric crane with 55-foot span for Carnegie Steel Co., Homestead works, to Alliance Machine Co.; 50-ton electric crane for Dwight P. Robinson & Co., New York, for shipment to Hawaii, reported going to Cleveland Crane & Engineering Co.; 40-ton, 1-motor crane for the Viscose Corp., Marcus Hook, Pa., reported going to Cleveland Crane & Engineering Co.; 5-ton, 2-motor crane, 40-foot span, for Central Structural Steel Co., New York, to Shepard-Niles Crane & Hoist Co.

CRANE ORDERS PENDING

Six 12½-ton electric cranes for Nichols Copper Co., Laurel Hill, Long Island, N. Y., early action expected.

Two electric overhead cranes, and possibly more, for Rundle Mfg. Co., Camden, N. J.; H. K. Ferguson Co., New York, engineer.

Used electrically operated or diesel operated shovel for National Tube Co., Pittsburgh.

Cleveland, March 5.—Delivery is the most important problem facing machine tool manufacturers today. Orders on file represent a diversified list of motor-driven tools. Units are desired to meet immediate requirements in various industries. Customers are using the telephone in an effort to hasten shipment. January was the best month from the sales standpoint ever experienced by many dealers and manufacturers of machine tools. February sales exceeded those entered during January and based on orders firm in hand, March may shatter all records of bookings. National Carbon Co. recently purchased equipment required for tooling its new radio department.

Chicago, March 5.—Machine tool deliveries are being even further extended, as dealers are entering the month with heavy unfilled orders. Some houses are unable to promise shipments on several lines of heavy equipment inside of 90 days or longer. Shipments on some lines of boring mills are lengthened to three months. Structural and plate shop equipment is six to seven weeks deferred. Machine tool manufacturers in this territory report difficulty in getting prompt shipments of steel castings, particularly from Chicago and Milwaukee foundries. Several dealers report February business the heaviest in a year, while others report bookings about the same as in February a year ago. February billings were heavy, and most houses have a large carry-over of business into March. The Santa Fe and Rock Island railroads are expected to place orders against their lists this month. Illinois Central is inquiring for a small drill, and is expected to be in the market with a good sized list soon. J. I. Case Threshing Machine Co. is buying additional equipment for Racine, Wis. Lathes, shaper, milling machine and specialty tools moved well during the week.

Gearmakers Meet in May

The thirteenth annual meeting of the American Gear Manufacturers' association will be held in Hotel Statler, Cleveland, May 16 to 18 inclusive. Speakers and papers will be announced later.

Group insurance totaling $650,000 has been provided by the Worth Steel Co., Claymont, Del., for its employes on a co-operative basis.

Construction and Enterprise

(*Continued from Page* 693)

used for additions and improvements and providing additional working capital.

EDDYSTONE, PA. — Baldwin Locomotive Works has let the contract for concrete reinforcing bars for a building to Taylor-Davis Inc., Philadelphia fabricator.

HOMESTEAD, PA.—Standard Steel Propeller Corp., incorporated recently, plans the construction of a new plant. Old buildings adjoining the present plant are being razed and a 3-story building is to be ready for occupancy July 1. (Noted Feb. 28).

LOCK HAVEN, PA.—New York & Pennsylvania Co. has let the concrete reinforcing bar contract for the construction of a power house to Faitoute Iron & Steel Co.

PITTSBURGH—N. C. Davison Gas & Oil Burner Co. was damaged March 1 by an explosion in the plant.

PITTSBURGH—Pittsburgh Piping & Equipment Co. plans the construction of a manufacturing plant at Forty-first street and Allegheny Valley railroad.

East Central

CHICAGO—Nordendale Mfg. Co., 1638 North Paulina street, manufacturer of metal stamping, plans the construction of a 2-story plant, 48 x 125 feet.

CHICAGO—Triner Scale & Mfg. Co., 2714 West Twenty-first street, manufacturer of scales, etc., plans to build a 4-story plant, 125 x 145 feet.

MONMOUTH, ILL.—Western Stoneware Co. plans to install power equipment in plant No. 2, being rebuilt after a fire loss.

ANDERSON, IND.—C. A. Martindale, 817 Jackson street, plans the construction of a 1-story machine shop and garage, 75 x 180 feet.

DETROIT—Hupp Motor Car Corp., 3641 East Milwaukee street, has awarded the contract for the construction of a 1-story stamping plant addition, 40 x 500 feet.

DETROIT—Detroit Lead Pipe Works, 600 West Larned street, is inquiring for machinery and equipment for the manufacture of lead pipe for its proposed new 1-story plant.

DETROIT—Barnes-Gibson-Raymond Inc. and the Cook Spring Co., the latter at Ann Arbor, Mich., recently acquired by the former organization, plan expansion in both plants. The companies manufacture springs.

JACKSON, MICH.—Structural steel for a forging plant has been awarded to Guibert Steel Co., through the Austin Co.

MUSKEGON, MICH.—Equipment is now being installed in the new plant of the American Coil Spring Co. and production is expected to be started in 60 days.

MUSKEGON, MICH.—Modern Equipment Co. is being formed here for the manufacture of portable pumps for use on construction jobs by Lorimer Dunlevy and I. B. Bennett, the latter president of Bennett Pump Corp. The new company will occupy part of the plant and equipment of the March Automatic Irrigation Co.'s building here.

CLEVELAND—Nickel Plate Foundry Co. plans the construction of an addition to its foundry building at 14915 Woodworth avenue.

CLEVELAND—Ohio Electric Controller Co., 5900 Maurice avenue, advises that work on its 2-story top addition, 38 x 80 feet, is under way. The company is handling the construction work.

CLEVELAND—Construction of a 4-story motor generator station has been started by the Cleveland Union Terminals Co., Terminal Tower building, on Hayden avenue, north of the Superior avenue bridge. The building will have two 2-story wings.

SPRINGFIELD, O.—Central Brass & Fixture Co. plans to install power equipment in the plant it is rebuilding to replace a fire loss.

TOLEDO, O.—Plans for the establishment of an industry devoted to the manufacture of heavy stampings, such as automobile bodies, fenders, radiator shells, etc., are furthered by C. O. Miniger, president of Electric Auto-Lite Co., Amos Lint, president of the City Machine & Tool Co., and associates.

HUNTINGTON, W. VA.—Chesapeake & Ohio railroad, Richmond, Va., has let the contract for a locomotive shop improvements to United Engineers & Constructors, 1401 Arch street, Philadelphia.

ASHLAND, WIS.—American Black Granite Co., Minneapolis, of which A. E. Appleyard is president, has bought the Charcoal Iron Co. of America plant here. The buyer will install equipment for handling and finishing granite.

BROWNTOWN, WIS.—White Rock Silica Co. is preparing to make extensive additions to the equipment of its sand plant near this village. H. F. Stoll is manager.

KENOSHA, WIS.—The board of vocational education has engaged Architect W. B. Ittner, 911 Locust street, St. Louis, to prepare plans for the proposed new vocational school. Work will start early in 1930. E. F. Randall, 6701 Fifth avenue, is director.

MILWAUKEE—Motor Grinding Co., 489 National avenue, has started work on a 1-story shop addition, 25 x 50 feet.

MILWAUKEE—Argonaut Realty Co., Detroit, subsidiary of General Motors Corp., has decided to postpone indefinitely the erection of the proposed new headquarters building for the Milwaukee branch of G. M. C. Trucks.

MILWAUKEE—Industrial Controller Co., 306 Hanover street, has awarded the general contract to Lupinski & Wolff, 290 Third street, Milwaukee, for constructing a 3-story plant addition, 50 x 140 feet. The work is in charge of Architect Fitzhugh Scott, 214 Mason street. Francis W. Magin is general manager.

SHEBOYGAN, WIS.—Koppers Co., Pittsburgh, has been awarded the contract for the first unit of a new gas plant for the Wisconsin Public Service Corp., subsidiary of the Byllesby Engineering & Management Corp., 231 South LaSalle street, Chicago. The contract includes boiler plant, water gas generator house, condenser house, scrubber building, machinery building, fifteen coke ovens, laboratory and offices. A. F. Davey is district manager at Sheboygan.

Southern States

ANNISTON, ALA.—Alabama Coca-Cola Bottling Co. plans to install power equipment in its new plant on South Noble street.

MOBILE, ALA.—John Morrell & Co., North Water street, has let the contract for a power plant in connection with construction of a packing plant addition to R. E. Lutz, 59 Conti street.

MAYPORT, FLA.—Power equipment will be installed in the fertilizer and fish oil plant of Mayport Fisheries Co. Inc., care of C. S. Wallace, Moorehead, N. C.

COVINGTON, KY.—Cambridge Tile Mfg. Co., Sixteenth and Woodburn streets, plans the installation of power equipment in its new plant.

RUSSELL, KY.—Chesapeake & Ohio railroad, Richmond, Va., has let the structural steel contract for the construction of freight car shops to McClintic-Marshall Co. (Noted Feb. 21).

NEW ORLEANS—Big Chief Oil Refining Co., El Dorado, Ark., is starting construction of a 5000-barrel oil refinery at Oakdale, La., below New Orleans.

NATCHEZ, MISS.—L. E. Myers Co., Allen building, Dallas, Tex., has the contract for the construction of an addition to the power house of the Southwestern Gas & Electric Co. A 1250-horsepower diesel engine will be installed.

WASHINGTON, N. C.—Phillips Fertilizer Co. plans to install power equipment in its new plant addition.

GARBER, OKLA.—Garber Refinery has increased capital from $250,000 to $500,000 to provide for improvements. H. L. Welton is plant manager.

LAWTON, OKLA.—City of Lawton votes in April on bonds for acquiring a 350-acre tract for an airport and hangar.

OKLAHOMA CITY, OKLA.—Air Fast Express, E. P. Halliburton president, Duncan, plans to erect hangars and terminal buildings at

Tulsa, St. Louis, Ft. Worth, Tex., and Dallas, Tex., as well as here.

TULSA, OKLA.—Jansen-Jenkins Co. has succeeded Jansen Mfg. Co. in a reorganization and plans are being made for a new 3-story plant, 80 x 115 feet, at 1213 South Frankfort. Andy Jansen is vice president and general manager. Present offices are at 121 West First street.

TULSA, OKLA.—In a reorganization of Tulsa Rig, Reel & Mfg. Co., Charles W. Flint was elected president and Roy Lundy, secretary-treasurer. Capital was increased to $500,000 and plans are expected to be made for new plant additions.

SPARTANBURG, S. C.—Draper Corp., Hopedale, Mass., has let the contract for the construction of an assembling and distributing plant for cotton mill looms to Fiske-Carter Construction Co., Masonic Temple building.

NASHVILLE, TENN.—Nashville, Chattanooga & St. Louis railroad, R. H. McDonald chief engineer, plans to erect a roundhouse addition at Twenty-sixth and Charlotte avenues.

BEAUMONT, TEX.—Magnolia Petroleum Co. announces enlargements of oil refinery, including four units of cracking stills and three pipe still units, also a gas converting plant and water pumping system. E. E. Plumly is general manager.

HOUSTON, TEX.—Southwestern Can Co. has increased capital stock from $280,000 to 7000 shares common stock no par value and $300,000. Expansion is planned.

HOUSTON, TEX.—Wyatt Metal & Boiler Works, Dallas, Tex., announces completion of its fabricating plant at Washington avenue and M-K-T railroad. Main building is 150 x 500 feet. Walter W. Banort will be Houston plant manager.

HOUSTON, TEX.—Transcontinental Oil Co. plans construction of large oil refinery at Texas City, which is terminus of proposed pipeline from West Texas fields. Work on refinery and pipeline will be started simultaneously. A. J. Slagter, Ritz building, Tulsa, Okla., is general superintendent of refineries.

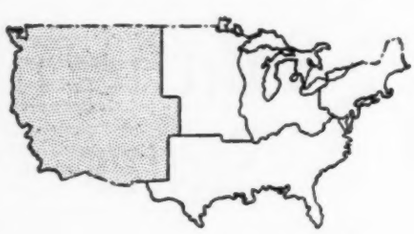
JOHNSON CITY, TEX.—Texas Power & Light Co., Dallas, plans the construction of a power plant here and at Blanco.

West Central

HARRISONVILLE, MO.—City, C. Lynch clerk, plans water works improvements including the construction of a dam and installation of pumps and motors, etc. W. B. Rollins & Co., 339 Railway Exchange building, Kansas City, Mo., are engineers. (Noted Feb. 21.)

META, MO.—C. T. Brotherton plans the construction of an electric power plant and also plans to construct a distribution system.

ST. LOUIS—St. Louis-Southwestern railroad, Buder building, H. G. Devine assistant purchasing officer, is inquiring for new tools and equipment for its shops in Tyler, Tex., and Pine Bluff, Ark.



Western States

LOS ANGELES—Adohr Creamery Co., 1801 Le Cienga road, plans the construction of a power house, 96 x 107 feet, Morgan, Walls & Clements, Van Nuys building, are architects.

PISMO BEACH, CALIF.—City plans waterworks, improvements, including wells, pumping plant, etc. S. G. Whittlesey, P. O. Box 188, is engineer.

DENVER—Power Equipment will be installed in the new 4-story unit of the Gates Rubber Co., 999 South Broadway.

Canada

EDMONTON, ALTA.—Additions to power plant as approved by the city council will involve an expenditure for new equipment. Proposed plans include the installation of two boiler units with auxiliary equipment which should be in operation not later than October, 1930. W. J. Cunningham is power superintendent.

VANCOUVER, B. C.—British Columbia Electric Co. has awarded to Stuart Cameron & Co. Ltd. the contract for building a dam at Ruskin on the Stave river. Construction work will proceed at once and the contract calls for completion by Oct. 31, 1930. This improvement is a unit of the electric company's new hydro-electric project. (Noted Jan. 31.)

VANCOUVER, B. C.—Development of a steel plant at Burnaby by unnamed eastern interests is announced by Maj. W. G. Swan, consulting engineer. The first unit is to be erected shortly. An option on the necessary property has been obtained and the promotors have requested the Burnaby city council for extension of water mains to the proposed site.

LONDON, ONT.—Utilities commission proposes to carry out the following construction work and purchase new equipment as follows: Substation, equipment, and two new transformers.

ST. CATHARINES, ONT.—W. J. Elliott Tool Co., Ltd., Woodburn street, proposes to build addition to plant here.

TORONTO, ONT.—Anglin-Norcross Ltd., Temple building, has the general contract for the erection of addition to the plant of the Canadian General Electric Co. on Ward street.

TORONTO, ONT.—McColl Bros., 114 Don Esplanade, have started work on an addition to their refinery on Commissioner street. Buildings consist of 27 units, tanks, vats and special machinery.

TORONTO, ONT.—Auxiliary Co. of Canada Ltd. has been incorporated to carry on the business of engineers with $10,000 capital by Harry L. Wright, Jessie M. Perry, Olive E. Nix, and others all of Toronto.

TORONTO, ONT.—Canadian Scale Co. Ltd., 12 Rebecca street, has awarded contract to J. W. Hewitt & Sons, 58 Roncesvalles avenue, for the erection of a plant at Ossington and Rebecca avenues. Building to be 1-story, 56 x 100 feet, steel and brick construction.

TORONTO, ONT.—Toronto Iron Works, Ltd., Cherry street, is having plans prepared by E. H. Darling, 72 James street north, Hamilton, Ont., for the erection of a plant to be erected on the south side of Eastern avenue here. Bids will be called soon.

TORONTO, ONT.—Rogers Batteryless Radio Co., 90 Chestnut street, has let contract to the Jackson-Lewis Co. Ltd., Federal building, for the erection of a plant on Fleet and Bathurst street, to be 2-story and basement, 82 x 200 feet. Architects, Horwood & White, 229 Yonge street. (Noted Feb. 14.)

TORONTO, ONT.—Tenders on bulk contracts to be called within the next few days by the Prest-O-Lite Storage Battery Co., 805 Davenport road, for the erection of a plant at the corner of Dufferin street and Geary avenue, to be 2-story, 80 x 300 feet. Complete equipment and machinery to be purchased later. Plans being prepared by company's own engineers. (Noted Feb. 28.)

TORONTO, ONT.—Pass Automatic Totalizers Ltd. has been incorporated to manufacture and deal in machines, devices, instruments, etc.,

WESTON, ONT.—Ferranti Electric Co., 26 Noble street, Toronto, Ont., is considering purchasing a 20-acre site here for the erection of a large manufacturing plant.

MONTREAL, QUE.—Plans have been prepared and bids will be called by the Canadian Carbonate Ltd., 1 Hadley street, for the erection of a 1 and 2-story plant in the vicinity of Colborne and William streets.

with $500,000 capital and 10,000 shares no par value stock, by Harry C. Pass, Phillip H. Daniels, Hartley W. Cavell, and others.

HIGH FALLS, QUE.—Authority to exploit the hydroelectric power site on the Lievre river here will be asked from the provincial government by the James MacLaren Co. Ltd., Buckingham, Que. The company has under way an extensive program of pulp and paper mill construction and power development in Quebec.

HULL, QUE.—Theo. Lanctor, city engineer, is prepating estimates for the construction of a waterworks plant here.

ESTEVAN, SASK.—J. C. Meade, 2 Renfrew block, Regina, Sask., is preparing plans for sewage disposal plant here.

REGINA, SASK.—Western Steel Products Ltd. is having plans prepared by Storey & Van Egmond, McCallum Hill building, for a plant addition at the corner of Scarth street and Fifth avenue, to be 100 x 100 feet.

Recent Incorporations

DENVER—Automatic Ball Valve Co., care of Rollandet & Stratton, 919 Security building, has been incorporated with $50,000 capital by J. W. McFadden, W. S. Lansing and George H. Watson.

CHICAGO—General Iron Works, 4121 West Lake street, has been incorporated with $5000 capital to manufacture ornamental iron and wire work by H. A. Huelse.

CHICAGO—Warner Gear Central Co., 1805 Indiana avenue, has been incorporated with $20,000 capital to manufacture and deal in automobile gears, parts, accessories, etc., by Fred Allison.

CHICAGO—Berg Michel Machinery & Supply Co., 323 West Illinois street, has been incorporated with $20,000 capital to manufacture and deal in machinery and supplies used in the food-packing industry, by A. A. Berg.

CHICAGO—Sandy Motor Products Co., 100 West Monroe street, has been incorporated with 2000 shares no par value stock to manufacture and deal in machinery, equipment, etc., by Frank Roman.

LAKE CHARLES, LA.—Lake Charles Welding & Machine Works Inc. has been incorporated by Thomas J. Clooney, Marguerite Place.

BALTIMORE—National Sash Weight Corp. has been incorporated with Wilson K. Levering, president, 200 Key Highway, to acquire sash and counter weight foundry of Levering Bros.

ALGONAC, MICH.—W. E. Warner & Sons Inc. has been incorporated with $100,000 capital to engage in a general foundry business by William E. Warner.

DETROIT—Tripp Products Inc., 450 East Woodbridge street, has been incorporated with $150,000 capital to manufacture, repair and deal in tools, parts, etc., by Charles M. Tripp.

DETROIT—Littstell Engineering Corp., 1036 Beaubien street, has been incorporated with $2000 capital to manufacture and deal in alloyed metals, finished products, and foundry equipment by Leo Schinagel.

DETROIT—Production Engineering Co. has been incorporated with $10,000 capital to manufacture and deal in machinery, engineering articles, etc., by Albert L. Giroux, 1622 Ferdinand avenue.

DETROIT—Detroit Steel Erection Co. has been incorporated with 1160 shares no par value stock to manufacture and deal in combinations of iron, steel and other metals by Frederick G. VanSlyke, 3851 Scotten avenue.

GRAND RAPIDS, MICH.—Kent Welding Engineers Inc. has been incorporated with 100 shares no par value stock to manufacture and deal in welding equipment and supplies by Harry W. Levering, 1117 Sigsbee street, southeast.

ST. LOUIS—St. Louis Carburetor Co. has been incorporated with $100,000 capital by Alfred M. Smiley, 2505 Grand avenue.

JERSEY CITY, N. J.—Pavonia Scrap Iron & Metal Co. has been incorporated with $50,000 capital by Joseph J. Loori, attorney.

BROOKLYN, N. Y.—Burlington Iron Works has been incorporated with $10,000 capital by I. Block, 2 Lafayette street, attorney.

NEW YORK—Advent Iron Works has been incorporated with 100 shares no par value stock by Kommel & Rosenberg, 11 West Forty-second street, attorneys.

NEW YORK—Kelley Marine Devices Corp. has been incorporated with $5000 capital to manufacture and deal in safety devices by A. P. Marr, 1321 Park Row, attorney.

NEW YORK—Mer-Maid Clock Mfg. Co. has been incorporated with $10,000 capital by Mottur & Mottur, 26 Court street, Brooklyn, N. Y., attorneys.

NEW YORK—Trojan Art Corp. has been incorporated with $10,000 in preferred shares and 100 shares no par value stock to manufacture and deal in metal work by Guggenheimer, Untermyer & Marshall, 120 Broadway, attorneys.

NEW YORK—Armo Coaling & Ventilating Co. has been incorporated with $20,000 capital to manufacture and deal in coaling and ventilating devices by N. K. Scherer, 350 Madison avenue, attorney.

SYRACUSE, N. Y.—Syracuse Bronze Co. has been incorporated with $20,000 capital by A. F. Montague, Syracuse, attorney.

WHITE PLAINS, N. Y.—White Plains Iron Works has been incorporated with $5000 capital by Feiner, Peecock & Buck, 364 East 149th street, New York, attorneys.

SCRANTON, PA.—Domestic Engineering Corp. has been incorporated with 300,000 shares no par value stock to manufacture and deal in household and farm machinery, tools, etc., by M. E. Malone, 29 Water street, Pittston, Pa.

AMELIA, VA.—Superior Electric Power Co. has been incorporated by Edmund Preston, Richmond.

RACINE, WIS.—Cooper-Kumpf Mfg. Co., incorporated recently with $50,000 capital to manufacture fractional horsepower electric motors and electrical devices, is leasing a building and will purchase equipment. Incorporators included Arthur H. Kumpf, 1815 St. Clair street.

TORONTO, ONT.—Nicholson Whittaker Ltd. has been incorporated to manufacture and deal in automobiles, motors, tractors, etc., with $75,000 capital by Gordon H. Nicholson, Harold D. Anger, and Earnest V. McKague, all of Toronto.

TORONTO, ONT.—Griplock Wire Strappings Ltd. has been incorporated to manufacture and deal in tools, machinery, devices, etc., with 40,000 shares of no par value stock by Wilbur R. Slater, Herbert G. Stapells, William S. Sewell and others, all of Toronto.

WELLAND, ONT.—Brodrick Contractors Ltd. has been incorporated with 5000 shares of no par value stock by Robert B. Law, Stella Phillips, and Jean Fares, all of Welland.

New Trade Publications

HEATING FURNACE—H. O. Swoboda Inc., Pittsburgh, is circulating a reprint of a description of its continuous electric furnace for heat treating strip metal and wire. It is illustrated.

TRAMRAIL—Cleveland Electric Tramrail division of the Cleveland Crane & Engineering Co., Wickliffe, O., in a current bulletin explains the service in handling rolls of paper and similar materials which need to be piled and reclaimed with a minimum of damage.

INSULATION—Structural Gypsum Corp., Linden, N. J., has issued several bulletins dealing with applications of its insulating product, gypsteel. One covers the heat insulation value of the material, another discusses the relative effectiveness of various types of roof construction in preventing condensation on the under surface and the third describes precast fireproof floors. The latter is fully illustrated to show method of laying the floors.

WELDING—Welding of pressure vessels by the oxygen-acetylene flame is the subject of a bulletin by the Linde Air Products Co., Chicago. It is a reprint of an article on this subject in the company's house organ. Illustrations show the various methods and results.

STEEL CASTINGS—Sivyer Steel Casting Co., Milwaukee, has issued a booklet, "Dependability in Steel Castings." It is issued on the twentieth anniversary of the pouring of the first heat by the company, Feb. 23, 1909. The book sketches the various steps from pattern to completed casting, showing how details are followed closely to attain best results. Tables are given of alloy and special carbon steels, showing their physical properties.

DUST COLLECTOR—H. A. Brassert & Co., Chicago, have issued a bulletin on a blower vertex collector for use in connection with a blast furnace to supplement the dust-catcher in reclaiming flue dust otherwise wasted. Illustrations show its application in several installations.

ROLLER BEARINGS—A fabrikoid-bound book of 150 pages has been published by the Timken Roller Bearing Co., Canton, O., covering application of its roller bearings to automotive, railroad and industrial uses. It is illustrated by sectional diagrams, halftones of equipment in which the bearings are used and tables of engineering data.

Pipe and Tube Prices—Plate Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLING

Butt Weld

	Black	Galv.
¼ and ⅜-inch	+11	+36
½-inch	23	5
¾-inch	28	11
1 and 1¼-inch	31	15
1½ and 2-inch	35	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	9
2½ to 3½-inch	28	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+13	+48
½-inch	23	7
¾-inch	28	12
1 to 2-inch	34	18

Lap Weld

2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ to 3¾-inch	56 off
4-inch	59 off
4½ to 6-inch	48 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. On 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¼ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	42 off

SEAMLESS HOT ROLLED

1¾-inch	39 off
2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
21-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{32}$-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{32}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds square foot.... .20c
Plates ordered 7.65 pounds square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, classes A-B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)
Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with reentrant angles)
Additional extra ..... .20c

Model 24-P ejection type press, having box 100" long, 20" wide, 42" deep. Finished bales measure 20" x 14" x 14" minimum. Can be equipped with power operated loading hopper.

LOGEMANN SCRAP METAL PRESSES

Hydraulically compressed scrap commands at all times the *best price,* and can be conveniently stored and held for favorable markets; it is easily handled; it practically eliminates corrosion; it saves much time in remelting; cars can be easily loaded to capacity.

***LOGEMANN Presses* are built in several types and sizes to suit all requirements.**

You cannot go wrong on a LOGEMANN—it's a money maker from the day it is set in operation.

PIONEERS!

LOGEMANN Scrap Metal Presses, pioneers in this industry, enjoy an enviable reputation for long life and economical operation. They are in daily use in practically every large sheet mill, stamping plant, scrap yard, and in metal-working establishments of all kinds.

Our many years of accumulated experience, and services of our Engineering Department are at the disposal of all plants accumulating metal scrap of any kind.

LOGEMANN BROTHERS COMPANY, 3126 Burleigh St., MILWAUKEE, WIS.

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United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
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International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACETYLENE GENERATORS
Air Reduction Sales Co., 342 Madison Ave., New York City.
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

ACETYLENE IN CYLINDERS
Air Reduction Sales Co., 342 Madison Ave., New York City.
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACIDS (Pickling)
American Chemical Paint Co., Ambler, Pa.

ADAMITE ROLLS
American Adamite Co., The, 410 Oliver Bldg., Pittsburgh, Pa.

AIR COMPRESSORS—See COMPRESSORS (Air)

ALLOYS
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, N. Y.
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Summerill Tubing Co., Bridgeport, Pa.

ALUMINUM (Vanadium)
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM BRONZE (Acid Resisting)
Duriron Co., Inc., The, Dayton, Ohio.

ANGLES, TEES, CHANNELS—See STEEL (Structural)

ANNEALING BOXES
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Petroleum Iron Works Co., The, Sharon, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bk. Bldg., Pittsburgh.

ANVILS (Cast Steel)
West Steel Casting Co., 805 E. 70th St., Cleveland, O.

APPRAISALS
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

ARCHES (Suspended)
Detrick, M. H., Co., 140 S. Dearborn St., Chicago, Ill.

ARCHITECTS (Industrial)
Austin Co., The, 16112 Euclid Ave., Cleveland, O.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Champion Machine & Forging Co., 3675 E. 78th St., Cleveland.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.

BABBITT METAL
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Williams Alloy Products Co., The, Elyria, Ohio.

BALING PRESSES
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

BANDS (Iron)
Bethlehem Steel Co., Bethlehem, Pa

BANDS AND HOOPS (Galvanized Strips)
Sharon Steel Hoop Co., Sharon, Pa.

BAR BENDERS
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., 71 Broadway, New York City.

BARRELS (Steel)
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

BARS (Alloy)
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.

BARS (Concrete Reinforcing)
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
Nicetown Plate Washer Co., Inc., Juaniata & Clarissa Sts., Nicetown, Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

BARS (Iron)—See IRON (Bar)

BARS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Pacific Coast Steel Co., Hunter-Dulin Bldg., San Francisco, Calif.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Timken Roller Bearing Co., The, Canton, O.
Youngstown Sheet & Tube Co., Youngstown, O.

BEAMS, CHANNELS, ANGLES, ETC.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
Phoenix Iron Co., The, 20 So. 15th, Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

BEARING METAL
Williams Alloy Products Co., The, Elyria, Ohio.

BEARINGS (Ball)
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Journal)
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Hyatt Roller Bearing Co., Newark, N. J.
Timken Roller Bearing Co., The, Canton, O.
Williams Alloy Products Co., The, Elyria, Ohio.

BEARINGS (Motor)
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Roller)
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Tapered Roller)
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Thrust)
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

BEARINGS AND BUSHINGS (Brass and Bronze)
Erie Bronze Co., 402 W. 19th St., Erie, Pa.
Williams Alloy Products Co., The, Elyria, Ohio.

BENDING AND STRAIGHTENING MACHINES
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland, O.
Hinman, D. A., & Co., Sandwich, Ill.
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Long & Allstatter Co., Hamilton, O.
Sutton Engineering Co., Park Bldg., Pittsburgh, Pa.

BENZOL AND TOLUOL RECOVERY PLANTS
Koppers Construction Co., The, Union Trust Bldg., Pittsburgh, Pa.

BILLETS (Alloy and Carbon Steel)
Central Alloy Steel Corp., Massillon, O.
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.
Washburn Wire Co., Phillipsdale, R. I.

BILLETS (Die Stock Steel)
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.

BILLETS (Forging)
Bethlehem Steel Co., Bethlehem, Pa.
Central Alloy Steel Corp., Massillon, O.
Erie Forge Co., Erie, Pa.
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.
Heppenstall Forge & Knife Co., 47th and Hatfield Sts., Pittsburgh, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadelphia, Pa.

BILLETS (Forging, Alloy Steel)
Bethlehem Steel Co., Bethlehem, Pa.

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